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Power Exposition Marks Engineering Progress

New and Unusual Machinery, Precision Instruments, Heating Plants, Chemicals, Metals, Etc., Demonstrated at Grand Central Palace This Week—More Than 500 Exhibitors Are Displaying Their Products to Advantage—Executives and Engineers From All Corners of Globe Attracted by Vast Array of Modern Devices

Despite the inclement weather last Monday, the Eighth National Exposition of Power and Mechanical Engineering opened auspiciously at the Grand Central Palace, New York. Huge power machines, unusual machinery designed for specific uses, new metals, precision instruments, important chemicals, heating plants, as well as other developments in the interests of power, mark the progress made by the engineering experts of the world in the year past. New inventions, processes, services, etc., are to be found in abundance.

More than five hundred exhibitors are displaying their products and almost any one visiting the show will find something or other adaptable to his business or profession, and, in many cases, these are surprisingly modern improvements. Early arrivals at the exposition included executives and engineers from various sections of the globe, and it is expected that before the week is over, practically every state in the union will be represented, as well as scores of foreign countries.

When the visitor beholds the vast array, it may be worth while giving a thought to the fact that the matter of power today is a far different proposition from the power of yesterday. With the great increase and expansion of industry there has been a corresponding increase of power. The same fuel used today produces twice as much power as it did ten years ago, thanks to inventive genius and the rapid series of improvements discovered by engineers.

Limitation of space prevents individual mention of all the exhibits, but the following is a record of some of those which are of particular interest to visitors of the paper industry.

Alexander Bros., Inc.

At the booth of Alexander Bro., Inc., is shown in operation their Tentacular Transmission Belt on several typical short center prives having high pulley ratios. This type of equipment has proved to be highly efficient on such drives as fans, blowers, compressors, etc. The construction of Tentacular provides for the elimination of air pockets which is a very important feature for high speed drives.

Armstrong Cork & Insulation Co.

The exhibit of the Armstrong Cork and Insulation Company of Lancaster, Pa., includes Armstrong Insulating Brick for furnaces, boiler settings, kilns and other heated equipment, this masterial being for temperature above 1600 degrees Fahrenheit. Nonpariel Insulating Brick for temperatures lower than that is also shown, as well as cork board for cold storage rooms and walls and roofs of buildings.

Babcock & Wilcox Co.

Sections of forged steel drum nozzles of various designs, with specimens of B. & W. welding practice, are shown in the exhibit of Babcock & Wilcox Company, of New York. Sections of latest designs in steam super-heaters and fuel economizers are also demonstrated. An exhibit of unusual interest is a sectional model of a Babcock & Wilcox cross drum boiler, complete with super-heater, air heater, economizer, and Bailey furnace walls, equipped with a Westinghouse stoker. There is also on display Babcock & Wilcox refractory products, such as standard and special fire brick shapes, cements and plastics.

Bailey Meter Co.

One of the most valuable and instructive exhibits is that of the Bailey Meter Company, of Cleveland, Ohio. The following products are shown: Bailey Meter Automatic Control as applied to the maintenance of various factors in process work; Bailey Thermo Hydraulic Feed Water Regulators, Pump Governors, and Excess Pressure Regulators; Bailey Fluid Meters of both the mechanically and electrically operated types for the measurement of steam, water, gas and other fluids; Selsyn operated devices for long distance transmission of readings of pressure, temperature, draft, liquid level, motion, speed and other factors.

A. W. Cash Co.

Cash Standard Pressure Reducing and Regulating Valves are exhibited at the booth of the A. W. Cash Company, of Third and Eldorado streets, Decatur, Ill. Cash regulators contain many special features and Cash standard equipment has the reputation of giving perfect regulation.

Cutler-Hammer, Inc.

Outstanding developments in motor control are displayed at the booth of Cutler-Hammer, Inc., of Twelfth and St. Paul streets, Milwaukee, Wis., consisting of: Across the Line Automatic Starters; Motor Operated Valve Control; the new C. H. Unbreakable Resistor; the Bulletin 9586 "AAA" small size Across-the Line Automatic Starters; New development in elevator control and accessories; Motor control for large buildings; Control apparatus for marine service; Electric heating units; Wiring devices, etc.

Fisher Governor Co.

Automatic steam and power plant specialties are displayed at the booth of the Fisher Governor Company, of Marshalltown, Iowa, including pump governors, reducing valves, steam traps, back pressure valves, float valves, liquid level controllers, strainers, and other automatic pressure devices. A new feature shown is the

master control unit, a multi sensitive valve, pilot controlled and easily adjusted.

Gears & Forgings, Inc.

Planetary Worm and Herring-Bone Speed Reducers are featured at the booth of Gears and Forgings, Inc., of 3130 Woodhill Road, Cleveland, Ohio. All kinds and sizes of gears; drop and smith hammered forgings; and Van Dorn 2 speed axles, are also shown. Exacting quality and absolute accuracy have become traditions in the machine tool industry. The fact that G. & F. gears are now being used by many of the larger machine tool manufacturers is a tribute to the efficiency of their methods and the quality of their products.

General Electric Co.

As usual at the Power Exposition, the booth of the General Electric Company, of Schenectady, N. Y., was one of the principal attractions to the thousands of visitors. Here are demonstrated G-E Synchronous Motors. The extensive use of synchronous motors in the paper industry is in a large measure, the result of an increased appreciation of their high efficiency and ability to improve plant power-factor and of the fact that it is possible to design this type of motor to meet practically all torque requirements. Exhibits of switch-gear and a photo electrically controlled door, are also shown.

Hartzell Propeller Fan Co.

Charavay Exhaust Ventilating Fans and Blowers are featured at the exhibit of the Hartzell Propeller Fan Company, of Piqua, Ohio. Single blade fans, multi-blade fans, two propeller fans, extension shaft fans, blowers, and Kool blast fans are ably demonstrated. The Hartzell Propeller Fan Company is also showing one of their theater fan. The remarkable efficiencies secured by Charavay fans are due to the application of modern aerodynamic principles used in the design.

Jenkins Bros.

Bronze and iron valves of globe, angle and gate types for standard and extra heavy pressure, are displayed at the booth of Jenkins Bros., of 80 White street, New York. A special feature of the exhibit is a 20 inch motor operated iron body gate valve. Rapid action for water service; Radiator valves of standard types; Mechanical rubber goods of all kinds, including sheet packing, and Moncrieff Scotch Gauge Glasses, are also demonstrated.

Johns-Manville Corp.

The structural effect of the exhibit of the Johns-Manville Corporation, of 292 Madison Avenue, New York, is built of J-M Transite and consists of three shadow boxes. The center panel shows their complete insulation service to industry. This remarkable complete insulation service was made possible by the acquisition of the Celite Products Company and the Banner Rock Company during the past year. One panel is devoted to their packing and another to their building materials.

W. A. Jones Foundry & Machine Co.

Featured at the booth of the W. A. Jones Foundry and Machine Company, of 4401 West Roosevelt Road, Chicago, Ill., is a new herringbone machine which has just been put on the market. Also shown at this exhibit are three types of speed reducers, the worm gear, spur gear and herringbone. Application to industrial work and the great range of speed reduction possible, is ably demonstrated.

M. W. Kellogg Co.

An impressive record of installations is shown at the booth of the M. W. Kellogg Company, of 225 Broadway, New York, on the main floor of the exposition. The latest developments pertaining to power house construction, including forge and hammer lap welded boiler drums, headers, receivers and piping, are featured here. Photographs and enlarged micro-photographs, are shown in the booth. Considerable attention is created by a 30 inch outside diameter high-pressure header for the Puget Sound Power and Light Company, designed by the Stone and Webster Engineering Corporation. Latest improvements in high pressure and superheat flanges and points are also included in the display.

Link-Belt Co.

The Link-Belt Company, of 300 West Pershing Road, Chicago, Ill., are showing their line of Link-Belt Silent Chain Drives, Finished Steel Roller Chains, Link-Belt Herringbone Speed Reducers—Sykes tooth form—and other interesting products for the positive and efficient transmission of power. The Link-Belt Silent Chain transmits power at uniform, sustained speeds, without loss or slip, materially helping in maintaining maximum production and making a high grade product.

Lockwood Trade Journal Co.

Prominently displayed at the booth of the Lockwood Trade Journal Company, New York, are the various publications of this organization, including the PAPER TRADE JOURNAL, Lockwood's Directory of the Paper and Allied Trades, Classifications and Definitions of Paper, Paper Testing Methods, Bibliography of Paper Making, etc. Interesting photographs mounted on a large panel and visualizing the most stable of all industries, are also shown. Another large panel demonstrates the fact that the pulp and paper industries of North America are the third in ranking of all manufacturing industries and that no less than $2,500,000,000 is invested in plants and equipment.

Mason Regulator Co.

An instructive and attractive exhibit is that of the Mason Regulator Company, of Dorchester Center, Boston, Mass. At this booth is shown a complete line of pressure reducing valves, pump governors, damper regulators and balanced valves. One of the principal features of the exhibit is their No. 329 double diaphragm auxiliary operated reducing pressure valve, used for holding the reduced pressure at a minimum variation.

Nash Engineering Co.

The new Jennings Double Suction Centrifugal Motor and Pump are shown at the large space occupied by the Nash Engineering Company, of South Norwalk, Conn. Advantages of this pump are that it can be arranged in almost any position. There are no bearings in the pump casing, only one stuffing box and the impeller is removable without disturbing packing. Jennings Suction Sump Pump is also demonstrated at this booth. Every working part is above floor level. The pump can be conveniently placed either near to or remote from the pit. Another feature demonstrated is the Jennings Suction Sewage Pump. This new unit has the additional advantage of being equipped with an efficient non-clog impeller. It can handle crude sewage without any need of screening. Only the suction pipe is below floor level.

Norma-Hoffman Bearings Corp.

The Norma-Hoffman Bearings Corporation, of Stamford, Conn., are exhibiting a complete line of ball, roller, and thrust bearings, including several new types of bearings which have been recently introduced. These include ball bearings with special forms of dust protecting and grease retaining devices, as well as their extra light series of ball and roller bearings having a very large bore with a small outside diameter. Various sectioned parts in which Norma-Hoffman bearings are applied, the sections being made in such a way as to demonstrate the principles of mounting involved, are also shown.

Oakite Products, Inc.

Another interesting and effective exhibit is that of the Oakite Products, Inc., of 42A Thames street, New York. At this booth is features complete technical and engineering services that are valuable guides to power plant usere of cleaning material. The display contains interesting comparisons of exchanger and con-

denser tubes and all other power plant equipment, before and after cleaning with Oakite.

Philadelphia Gear Works

A complete line of Philadelphia Speed Reducing Units, Couplings and Gears, are exhibited at the space of the Philadelphia Gear Works, of Philadelphia, Pa., on the main floor of the Power Show. Worm gear, spur gear and continuous tooth herringbone speed reduction units, together with standard types of gears, are displayed. This line of products is made at the new and most modern plant of the Philadelphia Gear Works, which contains all the latest equipment for the production of power transmission products, with speed and precision.

Prat-Daniel Corp.

Thermix products, including the Thermix plate type air heaters. Thermix stream-line stacks and Thermix cinder eliminating fans and stacks, are shown at the large space occupied by the Prat-Daniel Corporation, of 183 Madison Avenue, New York. The main features of the exhibit are their Type IV cinder eliminating and dust collecting fan in operation, representative Thermix of different types covering all ranges of operating conditions, as well as exhibits showing detailed construction of their apparatus. The new features and improvements shown include the latest type of cinder eliminating and dust collecting fans and rotor of special design for high drafts and with special provision to minimize wear and insure a long life.

Schutte & Koerting Co.

The exhibit of the Schutte & Koerting Company, of 1166 Thompson street, Philadelphia, Pa., includes a Toggle Top Stop Check Valve built for 2,000 lbs., working pressure; Gear pumps for fuel and lubricating oils. Trip throttle valve for turbines, steam jet and water jet primers for pumps, oil burners, boiler feed injectors and other power plant equipment.

F. L. Smidth & Co.

An operating exhibit of interest to all users of belt drives is provided by F. L. Smidth & Co., of 225 Broadway, New York. The Lenix Short Center Belt Drive is ably demonstrated. Special attention is given to the silent operation of a fine piece of machinery. The short pulley centers, not only possible, but preferable, with the Lenix, are featured. High belt speed with safety automatic adjustment of belt tension to meet varying loads, is also shown.

Taylor Instrument Cos.

Products of the Taylor Instrument Companies, of Rochester, N. Y., are displayed to excellent effect. The exhibit includes a complete line of indicating and recording thermometers, index dial type thermometers, thermo-electric pyrometers of the indicating and recording type, mercury column vacuum guages, barometers, glass engraved stem thermometers for testing automatic temperature regulators, etc.

The Texas Co.

The Texas Company, of 17 Battery Place, New York, is exhibiting lubricating oil and grease for use on power generating and transmission units with special reference to conservation of power or limiting power losses due to friction, through scientific selection of lubricants with reference to the work factor involved. The Texas Company has done considerable research work, based on the power saving factor of lubrication and has developed a number of new products during the past year for certain types of work and will produce others as their research work progresses.

Timken Roller Bearing Co.

An artistic and attractive display is that of the Timken Roller Bearing Company, of Canton, Ohio. This exhibit consists of a comprehensive assortment of tapered roller bearings for use in various sorts of power plant equipment. There is heavy work on such machines as jordan engines, beaters, dryers, fourdrinier rolls, calender rolls, screens and paper mill drives. Timken bearings give this equipment increased ruggedness, reliability, capacity for heavy service, and longer life.

The Walworth Co.

Four main lines of products are shown by the Walworth Company of the Statler Building, Boston, Mass., including Sigma steel valves and fittings for high pressure and high temperature steam service, bronze valves, chrome-nickel-iron pipe and Stillson wrenches. The Sigma valves are shown in sectional form, mounted on roller bearing swivel stands for easy examination of working parts. A test of the strength of the Stillson wrench is demonstrated.

Westinghouse Elec. & Mfg. Co.

Three booths are occupied by the big exhibit of the Westinghouse Electric and Manufacturing Company, of East Pittsburgh, Pa. The booth on the main floor is devoted to the exhibition of the Link-Grate Multiple Retort Stoker. This is the latest design of stoker for large boilers and heavy sustained loads. Two booths on the third floor are devoted to the display of a Westinghouse 150 h.p. type AMD mechanical drive turbine. This is the latest design of mechanical turbines for driving circulating pumps, centrifugal boiler feed pumps, blowers and other rotary apparatus.

Cutler-Hammer Moves St. Louis Office

The St. Louis district sales office of Cutler-Hammer, Inc., has moved from 611 Olive street to 1914 Washington avenue, St. Louis, Mo. A warehouse also has been established at St. Louis where a stock of standard C-H motor control and wiring devices will be carried for immediate delivery. The warehouse is located at the same address, adjoining the sales office. The warehouse proper covers almost 4,000 square feet of floor space. These new facilities will enable the company to better serve its trade in the south and mid-west.

The territory served by the St. Louis office includes the states of Kansas, Missouri, Oklahoma, Arkansas, Louisiana, Texas, Southern Illinois, Southern New Mexico, and parts of Tennessee, Kentucky and Indiana.

De Pere Dam Improvement Completed

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—Construction of the spillways of the large government dam at De Pere, Wis., opposite the Nicolet Paper Company's mill has been completed. Coffer dams have been removed and all the equipment has been moved to Kaukauna, Wis., where it will be placed in shape for use elsewhere next spring. The De Pere dam is one of the longest on the Fox River. Last year new concrete abuttments and steel gates were installed, and this season the spillways were replaced with concrete ones. This was the largest project along the river this year and a much needed improvement.

Railroad Ruling Will Help Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 3, 1929.—Paper manufacturers of this section hope to benefit from a proposed arrangement for a "stop-off-in-transit" privilege by which new rule on the Boston and Maine Railroad, shippers will be permitted to start a car from one point partially loaded, move it towards an intermediate point and complete the loading, with only the carload rate from the original point plus the nominal $10 charge for the stop-off privilege. The stop off privilege will be good for 48 hours. It is believed that this will open up some western markets for eastern manufacturers because in many cases merchants beyond the Hudson could not send a sufficient order to one mill to secure a full carload rating.

News Print Price Problem Remains Unsolved

General Opinion Is Expressed In Canada That Contracts for Next Year Will Be on Basis of From $57 to $60 Per Ton, F. O. B. Mill—Premiers of Ontario and Quebec Insist That $60 Would be Reasonable Quotation—Government Using Moral Pressure.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 2, 1929.—The highly-inflammable controversy regarding the price of news print for the ensuing year continues in full swing. The general opinion here now is that 1930 contracts will be on a basis of from $57 to $60 per ton, but meanwhile Premier Ferguson has publicly stated that the Provincial Premiers will submit an ultimatum for $60 a ton to the International Paper Company, and are prepared to organize a fight to achieve their object.

Government Pressure on Paper Industry

Prior to these important developments indications of the pressure put upon the International Paper Company were not wanting. Premier Taschereau led the way by announcing that he and Premier Ferguson were agreed on $60 a ton as a reasonable price, and intimated that while neither he nor Premier Ferguson wished to negotiate on the matter, they were quite determined to do so if necessary. He pointed out that in both Quebec and Ontario the greatest amount of news print comes from Crown lands, adding, "It is our duty in the two provinces to see that we get fair returns from our forests, and we both consider that the price of $55, which has been paid this year, is not a fair return for our forests."

The Premier was asked if his reference to "fair returns" implied a raising of the stumpage dues, and he replied: "Well, if Ontario and Quebec do not get fair returns for their forest wealth, we will have to do something, but what that something will be we will have to decide later on, but before taking a hand in the matter we wish to give our point of view."

Asked if the Quebec Government had the power to intervene, Premier Taschereau said: "We can do almost anything, but we do not want to make the price of paper, for when a government intervenes to fix the price of merchandise it does not succeed generally, but in this case be it remembered that the paper is made with our wood, and if they want to cut down the wood of the province, the province has a right to see that the workmen, and the Canadians who have placed their money in these enterprises, shall have a fair return for the money, and labor. I hope the news print manufacturers will be able to understand each other in the matter."

The Premier added: "There is one feature that I do not want to overlook. If some concerns are driven out of business because they cannot get an adequate return for their product, the newspaper publishers should not overlook the fact that the result will be a big trust and a combine, and in the near future they will have to pay more than they expect, and it is well for them that the price be stabilized so that they will know where they stand."

The premier was asked whether it would be possible for news print manufacturers, having contracts at $55, or at other figures less than the price to be agreed upon, would be able to break their contracts and exact the higher price.

"That is a matter for them to decide," was the answer. "It is a mistake for any paper manufacturer to make a long-term contract when they have to depend upon the wood of the Province of Quebec, to produce their paper without knowing what terms they will have to arrive at with the Province to get their wood supply."

Premier's Ultimatum to International

Premier Ferguson, in an interview, not only announced that the provincial Premiers would lay down an ultimatum that prices must go up to $60 a ton, but also that part of the International's production must be shared with other mills, now slackened down.

Mr. Ferguson said he conceived it his duty to protect the $300,000,000 investment which, he said, Ontario bondholders and stockholders had in Ontario paper mills.

"Moreover," he said, "if we have to protect our workmen and our forests against this large United States organization, then we must organize to fight."

Rumor is rife as to exactly what the Provincial Governments have in mind if the problem is not solved by agreement. There is the possibility, it is said, that some of the existing leases for cutting on Crown lands may be cancelled. As to the stumpage rate, in so far as Quebec is concerned, cutting licenses are renewable yearly and adjustments in stumpage dues coincident with this procedure. The present rate is $2.70 per 1,000 feet stumpage, and it is believed that the Provincial authorities would like to raise this by some 25 or 30 cents, the revenue to be devoted to fire-protection and reforestation.

Forest Conservation Vitally Important

Apart from the price consideration, another reason for the Premiers of Quebec and Ontario taking part in the present controversy is to see that the industry shall be so run as to be a permanent one. They do not desire it to be so profitable that over-expansion shall again occur but, at the same time, they do not want the price to be so low that there shall be failures of companies with consequent distress among a large number of Canadians who draw their wages and salaries from it. The industry heads the list in Canada for gross and net value of manufactured products as well as for distribution of wages and salaries. Such an industry is worth while preserving not for a few decades, but forever.

The following table illustrates the course of production in the industry in United States and Canada since 1913:

	Canada tons of News Print	United States tons of News Print
1913	350,000	1,305,000
1914	415,000	1,283,000
1915	489,000	1,239,000
1916	608,000	1,315,000
1917	689,847	1,359,012
1918	734,783	1,260,285
1919	794,567	1,374,517
1920	875,696	1,511,968
1921	805,134	1,226,189
1922	1,081,364	1,447,688
1923	1,266,232	1,485,000
1924	1,352,994	1,481,425
1925	1,522,217	1,530,318
	(Canada hereafter leads)	
1926	1,881,737	1,686,695
1927	2,082,830	.....
1928	2,414,393	1,414,952
1929 (to date)	.....	.....

The situation from the larger point of view of Canadian interests as a whole is summed up as follows:

"In view of the fact that investments in pulp and paper industries reached in 1928 the total of $685,687,459, the great issues involved are obvious. The shareholders are scattered all over

Canada and the United States, and to a certain extent Great Britain. It is an industry in the front window of Canada's workshop. Its profitableness to the shareholders will therefore have an important effect in the way outside capital regards Canadian opportunities. It will doubtless give a good account of itself in the years to come, so far as the investor is concerned, but at this stage it would seem better that a reasonable price should be arrived at and maintained with some hope of stability, than that the industry from a profit-making standpoint should have a famine for a time and then strive in later years to make up for it by charging very high prices. The latter alternative is not one that the Provincial Premiers, interested in the conservation of the industry, can look at with indifference as it is evident that under such a regime conservation would get all too scant attention."

St. Lawrence Paper Mills Busy

It is announced here that the mills of the St. Lawrence Paper Mills Company at Three Rivers, Que., enjoying the distinction of running over capacity on a regular schedule, and have sufficient contracts on hand to keep up this production for months to come.

Until three months ago, the mill was operating with only four machines having a capacity output of 90,000 tons. Since that time two additional news print machines were added with a combined rated capacity of 150 tons, increasing the capacity of the plant to 450 tons a day, or a total of about 135,000 tons a year. It is understood that these new machines are 10 per cent more efficient than the others, and production has actually run in excess of their rated capacity.

Quebec Timber Output

C. C. Piche, director of the Quebec Forest Service, takes direct issue with the statement made by Sir George Courthope in the British House of Commons to the effect that Canada's timber supply would be exhausted in 30 years. Mr. Piche said: "Experts of the Quebec Forest Service cannot predict any limit on the duration of forest resources, since they have not in their possession all the elements to enable them to make such a prediction. But, knowing the progress made every year where more territory has been placed under control, where the cut is limited to the annual increment, and knowing that the vast regions not under license contain very large quantities of timber, they believe that in thirty years' time the forests of Quebec will not only produce as much timber as at present, but much more.

"By maintaining and extending the same efficiency that now exists along the lines of fire prevention, salvaging immediately all timber on sections affected by fires, insects and fungi, by using mature and over-mature forests first, by eventually thinning young forests, and by a vigorous policy of reforestation, any such crisis as predicted by Sir George Courthope will be avoided.

"As forest conditions in the province of Quebec are better from a standpoint of tree growth than in many countries of Europe which now yield several hundred board feet per acre annually, there is no occasion for alarm on this matter," Mr. Piche stated.

Westminster Paper Company

It is reported from authoritative sources that refinancing has been completed and work on the construction of the new plant for Westminster Paper Company, Ltd., at New Westminster, B. C., is proceeding immediately. Montreal financiers are largely interested in the concern.

B. C. Pulp & Paper Co.

A despatch from Vancouver says that during the past three and a half years, British Columbia Pulp and Paper Company, Ltd., manufacturers of sulphite pulps, have expended about one million dollars on improvements in their plants, with the primary object of producing pulp of the highest quality. At the plant at Woodfibre, B. C., the output is now 115 tons per day of strong and easy bleaching sulphite pulp.

By the addition of improvements in mill control and addition of special equipment for cleaning the product, as well as additions to power and water supply, a pulp is now produced which is clean and remarkable for its strength. A large proportion of this pulp goes to the Oriental markets as well as to England.

At Port Alice, B. C., the plant has been increased in size some twenty-five per cent and the output is now about 110 tons per day. Cleanliness is now an outstanding merit of this pulp, which is finding a ready market throughout the United States, in Eastern Canada, and the Orient, and is used chiefly for high grade papers.

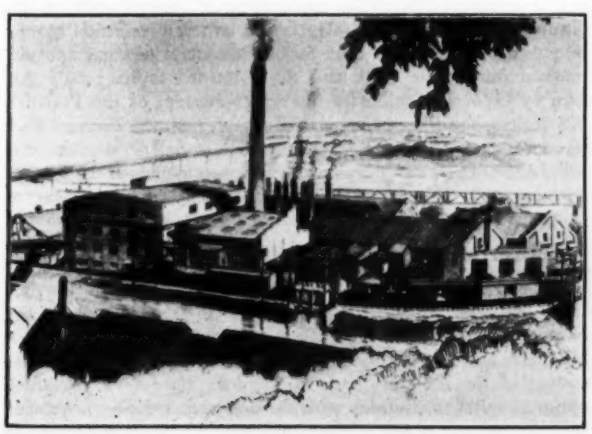
Canadian Pulp and Paper Association

The 17th annual meeting of the Canadian Pulp and Paper Association will be held in the Pulp and Paper Institute, Montreal, on Friday, January 31. It will be preceded as usual by the annual meetings of the various sections.

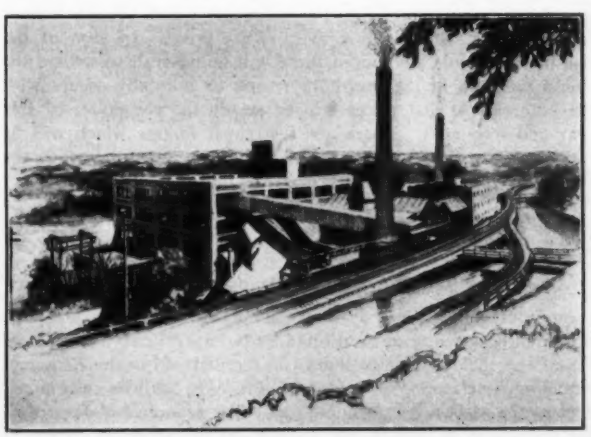
New Fir-Tex Plant Nears Completion

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., November 30, 1929.—The Fir-Tex Insulating Board Company's plant at St. Helens, Ore., is getting under way in good shape. The railroad and highway are finished into the place and the concrete has been poured for the foundations and first floor of the laboratory building. Footings on the east end of the main factory are in place, forms are being erected, excavations going on and bustling activity is evident everywhere. The dock is almost finished and towers for elevating concrete and handling the chutes are now in place. The J. F. Shea Construction Company has 170 men on the job and the fine weather which still continues is most gratifying.



REPRODUCTION OF PAINTING OF BROWN ISLAND MILL OF ALBEMARLE PAPER MFG. CO.



REPRODUCTION OF PAINTING OF HOLLYWOOD AND RIVERSIDE MILLS OF ALBEMARLE PAPER MFG. CO.

Demand for Paper Declines in Philadelphia

Activity In Local Market Was Slightly Lower Although Business Shows Improvement Over Corresponding Period Last Year—Wrapping Paper Movement Expands, Due to Holiday Requirements—Standard Grades of Fine Paper In Excellent Request

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 2, 1929.—Though the past fortnight has not been as active as the earlier days of the month there has been sufficient demand to warrant an improvement over the same month of the previous year. This is particularly true of the wrapping paper market, where holiday needs brought about an upward swing. Wholesalers of fine papers are also reported to have enjoyed a brisk demand on a parity with the steadiness which has prevailed during the past six months. In comparing November sales with those of October of the current year paper distributors find that the latter month was below the records of paper consumption in the previous year but November saw a forward movement in paper traffic which brought the record slightly in excess of November, 1928. There is one branch of the Philadelphia industry which is jubilant over the year's business accounts and that is the wholesale paper divisions. Those merchants who sell book papers in volume to distributors and consumers among the larger printing and publishing houses report an unprecedented demand for uncoated book grades throughout the past six months. High grade writing papers have been active, as have been bristols, and better grades of card boards.

Kraft Rise Commentations

Just what effect the rise in the price of kraft will have on the future of the wrapping paper market is the chief topic of interest to the Philadelphia wrapping paper dealers. The advance of $10 per ton which was announced a few days ago, following in the wake of a similar rise in values last March, has brought about a serious problem to the trade especially for those dealers who are obliged to buy and sell at the higher quotations in competition with those distributors who have plenty of stocks on hand purchased at lower prices. There are paper merchants who are holding over large quantities of kraft purchased earlier in the year. The demand for kraft, locally, has been poor this season, so that the trade is well stocked with lower priced goods and at an advantage to compete with the high priced grades that will prevail for the near future, at least. It is believed by local dealers that the rise in the price of kraft is due to the five day week which many mills will operate on in the future and to the high cost of pulp and that these factors enter into the influences which brought manufacturers to a determination to raise the prices. In view of the rise in values just announced there will be no rush to unload the stocks on hand in the inventory season as normally occurs with the year end so that prices will be steady the remainder of this year and into next. There are few paper houses which will be found without krafts on hand in considerable quantities when the year's inventory is completed so that the present rise will not seriously interfere with the local kraft market and offers will be scarcer than for many years in the closing weeks of the current season.

Paper Trade Association Informed on Credits

An interesting discourse on credits was the main feature that occupied the meeting of the Philadelphia Paper Trade Association, Fine Paper Division, at the luncheon session held at the Benjamin Franklin Hotel, last Wednesday. With W. S. Wilcox, vice president of the association presiding, the entire session was devoted to the discussion of credits, the speaker on the program, James E. Vaughn, Jr., of the National Association of Credit Men, being introduced to the fine paper merchants by that official. Going into detail, Mr. Vaughn gave an informative and elucidating talk on organization and stability of credits, mentioning specific cases where various business organizations have been benefited by co-operative efforts in this factor of trade practices, and giving advice to the paper dealers for effective work along these lines.

Wholesale Waste Merchants Banquet

Plans for the annual banquet of the Wholesale Waste Merchants Association of Philadelphia were discused at the Fall meeting of the organization, held last Thursday at the Hotel Lorraine. The annual social occasion was the only topic under discussion as it will be a specially interesting gathering in celebration of the Silver Jubilee of the organization. This 25th Anniversary banquet will be made most alluring, with additional features on the entertainment program and a broad representation of trade associates assembled from all parts of the country joining in the merry and diversified festivity outlined tentatively to the members at last week's gathering. President Thomas A. Kenny presided and appointed the following banquet committee to arrange the details of the coming festivity to be held either in February or March at the Penn Athletic Club. These are on the committee: George B. French, Castle & Overton; William L. Simmons, Jr., John Simmons Sons; Dominic De Santi, Alex. De Santi & Co.; Charles McNichol, P. De Sante & Co. and William J. McGarity, Jr., Penn Paper and Stock Company.

Col. B. A. Franklin Talks on Strathmore Envelopes

On the eve of one of the most interesting and comprehensive, as well as novel envelope promotion campaigns instituted by the Strathmore Paper Company of Mittineague, Mass., Col. B. A. Franklin, head of that manufacturing concern, journeyed to Philadelphia to discuss sales plans with the Quaker City representatives of the Strathmore lines, last Monday. The meeting of the Philadelphia dealers was held at the Poor Richard Club, when Colonel Franklin talked on the innovation in sales and manufacture of the Strathmore envelopes. Simultaneously with the arrival here of the head of the Strathmore Company there was shown in the sales rooms of the various paper houses representing the line the complete display of Strathmore envelopes which have been produced to correspond to the broad assortment of papers made at the Mittineague mills. This display is the largest ever made by any fine paper manufacturer. The Strathmore envelope campaign was launched during the week and the foreword in its behalf was given by Colonel Franklin to the representatives of the Philadelphia dealers, the Paper House of Pennsylvania, the Charles Beck Paper Company, A. Hartung, Inc., and Raymond & McNutt. He outlined the details of the campaign and then explained the various envelopes and their matching with the complete assortment of papers made under the Strathmore brands.

Howard Marcus Continues with A. S. Datz & Son

Although the business of A. S. Datz & Son, 16 South Marshall street, has been purchased by new owners, Howard Marcus will continue as an associate of the concern under its present ownership. Mr. Marcus, who was an associate of John A. Datz, in the conduct of the business of A. S. Datz & Son for 22 years will continue in that relationship with the new owner, Louis Schulman, under its reorganization. Other associates on the staff of the old concern who will continue in their respective capacities with the present owners are Joseph F. Maerz, who has been connected with

the house as its Philadelphia representative for 22 years, and John Allen, who has been linked with the business as Eastern Pennsylvania and Southern salesman for more than a score of years. The new owners are the Louis Schulman Company, 465 Broome street, New York, dealers in paper box manufacturers' supplies. Mr. Schulman was a visitor to the Philadelphia offices of A. S. Datz & Son during the week. The Datz business is one of the oldest in this section and has been devoted to the distribution of paper boxes and printers' papers for more than 40 years.

Paramount Paper Products Holiday Lines

Producing a line of glassine bags and Parafan bags and allied products, the Paramount Paper Products Co., Inc., 3rd and Callowhill streets, is now engaged in production of a line of holiday designed specialties adapted for the Christmas season. Designs of holly and other Yuletide creations are now being imprinted in its products in two and more colors. The firm is giving a wide range in designs of its own make of Parafan bags which are used by the baking and confectionery trades. The Enterprise Paper Company, which is affiliated with the Paramount Company, is also prepared to meet the Christmas needs of the trade with a broad assortment of holly boxes, seasonable wrapping papers, decorative bags and papers.

Schwartz & Co. to Change Title

With the New Year there will be a change in the title of the firm of Schwartz & Co., according to an announcement sent out last week. Under the change the firm will, after January 1, 1930, be known as the Commercial Paper Company, while remaining under control of the former owner, Samuel Schwartz. The business has been established for more than twelve years and formerly was located in Bank street. Last January the firm removed its paper warehouses and offices to larger quarters in the building at 151 North 3rd street, where three times the former space was acquired, and provided for the extension of its lines and business. Since taking over the new quarters, the stocking of paper specialties, wrapping papers, and bags, has been greatly augmented with a line of sanitary products and twines carried in complete assortments. There has also been added to the business in the new quarters a line of stationers' supplies in flat papers, blottings, typewriter papers, mimeograph papers and other commercial stationers' supplies.

Valentine H. Wendt Back from Europe

Having recently retired from a long association with the Gloucester, N. J., mills of the Hinde & Dauch Paper Company, Valentine H. Wendt, who has been touring Europe since his retirement, is back again at his home in Gloucester. Mr. Wendt, who was former superintendent of the Gloucester mills, and is father of the present head of the mills, spent six months touring the Old World, returning home for a brief stay before taking to the road again on a tour of the West.

Thomas A. Lawley Retires from Union Bag & Paper Corp.

Thomas A. Lawley, who has been associated with the Philadelphia offices of the Union Bag and Paper Corporation, in the Drexel Building, for a number of years, will retire from that concern on January 1, 1930, having announced his resignation effective as of that date. He is one of the best known paper bag salesmen in this section and has a wide following among the paper bag jobbers in this part of the country through long affiliation with that branch of the industry.

Vernon Schroff to Represent International

After several years' association with the Philadelphia staff of the International Paper Company, in the Pennsylvania Building, Vernon Schroff will continue to represent that manufacturer's line of news print and specialties as Quaker City representative under recent announcement. He was formerly associated with Fred Rowley, who was manager of the local offices until approximately a year ago.

News of the Chicago Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 30, 1929.—The J. W. Butler Paper Company has just opened an office in Peoria, Ill., as the result of years of intensive development in this territory. The new branch will be at 800 South Adams street in the down state city. J. T. Thomas, the new manager of the Peoria branch, has represented the Butler lines in the Peoria territory for a number of years. According to reports Mr. Thomas will have six men working under his supervision in the branch while two or three additional salesmen will be assigned to the down state territory. These figures are not verified by the Butler organization, which is just now completing plans for representation in Peoria.

Chicago paper wholesalers, jobbers, and representatives, are handling new grades and lines according to reports from various houses indicating recent appointments. The Midland Paper Company is to handle the Kilmory Book, manufactured by W. C. Hamilton & Sons, of Miquon, Pa., while Allen & Co. will represent the Hamilton Bond line of the same manufacturer in this territory. It is also reported that the Messinger Paper Company is now handling Resistall Linen Ledger, Resistall Bond and Resistall Index Bristol, three new resistance papers manufactured by the L. L. Brown Paper Company, impervious to water, oil, perspiration and abrasion according to the report.

A. R. Rapp, president of the Arthur R. Rapp Company, manufacturers of paper specialties and waxed papers, announces that his organization has moved into its own new building at 2323 Wolfram street, Chicago. Mr. Rapp indicated that an increase in the business of Arthur R. Rapp Company made necessary the move which insures modern factory improvements and an opportunity for expansion. The new location will also insure even better service for customers than has been given in the past.

Noble Gillette, president of the Chicago Paper Company, has just returned from a trip in the East in the interests of the National Paper Trade Association. Mr. Gillette attended an informal meeting of paper merchants with the informal discussion relating to plans of the association. He also attended a meeting of the Standardization Committee at the offices of the American Paper and Pulp Association in New York City. The Chicago Paper Company executive also visited agents of his firm in New York.

Another of the splendid series of direct mail pieces being sent out to the advertising and printing trade in Chicago by Bermingham & Prosser, Chicago, advertising the line of Oxford Folding Coated Paper, has been sent out this week. The broadside carries an exceptionally fine display of color work as used by the Richard Hudnut Company. The title of the broadside is "Give Maximum Selling Power to Direct Advertising." The Oxford line included Folding Coated, North Star Coated, Oxford Polar Coated, Oxford Dull Coated, Oxford Super and Oxford English Finish.

Latex Compounds For Coating Paper

The Fiber Products Department of the United States Rubber Company at its recently acquired Rock City Falls plant will manufacture a product which for the past two years has been made for it in outside paper mills. Last year about a half million yards were put on the market and the current year's business will be well in excess of that figure.

The Cleveland plant has been in commercial production on a wet-machine latex-treated fiber product sold to the shoe trade since July, 1927. Prior to that time a semi-commercial plant was operated at New Durham, N. J., for a little over a year. In the year 1928 many millions of pairs of doublers were shipped to the shoe manufacturers.

Among the important products of the Fiber Products Department are latex compounds for use in connection with the coating of paper.

Ontario Paper Mills Only Moderately Busy

Fine Paper Manufacturers Have Less Advance Orders Than At Any Time During Past Year—Coarse Papers, Including Wrapping and Paper Bags, Rather Draggy—Demand for Kraft Fairly Satisfactory, Although Orders Have Fallen Off Slightly

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 2, 1929.—The month of November closed a little firmer in wholesale paper circles with sales having increased somewhat, indicating a return to normal following the effects of the stock market debacle. It is believed that there will be an improvement for the balance of the year and paper wholesalers are predicting good business. Even with the improvement shown at the end of November the distributing end of the paper industry is not just what it should be and for the most part wholesale houses are operating under light sales. On the other hand, one leading Toronto paper wholesaler reports his sales well up to the corresponding period of last year. This, however, appears to be a somewhat isolated case. Most of the paper houses could stand a good deal more business just now and they are finding orders of any size rather hard to book. There is a distinct quietude in printing circles, although the larger plants and the lithographing establishments are keeping fairly busy. The volume of business, however, is not such as to evoke any sizable orders of paper, and consumption generally may be said to be lighter than it should be at this season of the year.

The manufacturing end of the paper industry is going along on a fairly satisfactory basis, although fine paper mills have less orders ahead than they have had at any time during the year. Book paper mills, for instance, have always been booked ahead for several months and now advance orders are measured in terms of weeks instead of months. Mills manufacturing bonds, writings and ledgers are only moderately busy and there is a certain dragginess about the coarse paper market, including wrapping and paper bags. Kraft paper demand is fairly active and as steady as the kraft market habitually is there has been a slight falling off in orders throughout most sections of the Dominion. The mills, however, are operating well up to capacity and so far the product has been well absorbed. There is a steady demand for grease proof, waxing and glassine papers but they are not in the generous demand they were a few months ago. Light weight paper mills turning out toilets and plain and fancy tissues are in a good position and are doing a really good business.

There has been little improvement in business as far as the paper converting trade is concerned and the year for this branch of the industry promises to close with a record considerably under that of last year. Envelope manufacturers, for instance, felt the effects of stock market conditions on business generally throughout Canada, and they have not recovered to any extent. Envelope demand is light and has been for the past couple of months. Manufactured stationery lines generally are in light demand as they have been for the past several months.

While the board mills are quite active as the result of co-operation by the different mills, the fact remains that the paper box industry is not nearly as brisk as it was a year ago and it begins to look as if carton manufacturers would have to register a much lighter volume of sales than it did last year. Both October and November saw a falling off in volume of sales and the outlook for any immediate improvement in conditions is none too bright. Most of the Christmas commitments by the box consuming firms are already made and unless there is a substantial pick-up in business within the next few weeks the year's record will show a decrease. Fortunately most of the firms look back over a fair record of business up until stocks began to tumble, with the resultant slowing down of trade in all lines, and there should be no very serious consequences if the year ends somewhat flatly as is anticipated. The industry generally is in a prosperous condition with its foundations firmly laid and there should be little difficulty in absorbing the temporary losses that the present year is likely to show. In the meantime few of the paper box industries in the Dominion are as busy as they should be at this season of the year. Some new lines have been developed which should yield good business later on, but orders for standard lines of both folding and set-up boxes are coming in slowly, while the same may be said of the corrugated department.

Ottawa Watching News Print Price Control

Apropos of the decisions of Premiers Taschereau and Ferguson that $60 a ton is a fair price for news print, the point has arisen at Ottawa whether the manufacturers of news print paper will violate the provisions of the Dominion Combines Act if they agree among themselves to raise the price to that figure. The Act does not prohibit all price-fixing, but only price-fixing which operates to the detriment of the public. There are many cases of price-fixing in Canada which are not considered offenses against the Act. Many manufacturers have uniform prices. The railways fix rates but they are regulated by the Railway Board. Whether an industry which fixes prices with the approval of the two Provincial Premiers is offending against the Act is a matter which cannot be decided off hand, but would require legal study, and no opinion can be given without further consideration. Eighty per cent of the output of the Canadian news print mills goes to the United States, and the Canadian combine law would not apply to price-fixing on that portion of the output in any event, as the United States authorities permit their export associations to fix prices on export goods regardless of the Sherman Act. In British Columbia the Legislature passed an act respecting the fruit-growing industry which possibly violated the provisions of the Federal Combines Law, but the Dominion authorities would have had to indict the whole Legislature had they decided to take action. It was felt that, if the Legislature of the Province endorsed the scheme of the fruit growers, that scheme must be in the public interest. The point therefore arises: Does the approval of the Premiers of Ontario and Quebec indicate that the fixing of a uniform price for news print would be in the public interest? Have the two Premiers gone into the question of costs of production, and if so, how thoroughly? Had they a staff of accountants to assist them? If the proposed uniform price of news print is detrimental to the public, it is assumed that there will be complaints, as the purchasers of news print are well organized and have adequate means of making themselves heard. It may be said that Ottawa is watching developments and there is no guarantee that the Federal authorities will not step in later on if they think such action is called for.

Technical Council and Paper Industry

Further steps toward supplying the pulp and paper and other industries in Canada with university trained men were taken at the annual meeting of the Technical Service Council held at the National Club in Toronto this week, at which the Canadian pulp and paper industry was well represented among the fifty men from mills and universities who sat down to dinner under the chairmanship of S. R. Parsons. Following the chairman's address a resume of the activities of the Council was presented by Balmer Neilly who traced the work from its inception up until the appointment of Col. R. E. Smyth as director, the latter covering the period from his appointment until the present with a comprehensive report. Among the speakers were H. C. Hudson, General Superin-

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tendent of Employment Service; Dean Clark, Colonel Smithson, Canon Cody, S. R. Parsons, T. A. Russell and Professor Haultain of the University of Toronto, the latter being credited with the original conception of the scheme from which sprang the Technical Service Council. In the addresses and in the discussions which took place at the board it was demonstrated that many of the industries which had been rather luke warm in regard to the employment of university graduates had now changed their viewpoint and now acknowledged that the absorption of these trained men into their industries was helping to solve problems of domestic as well as world-wide competition. It came out in the course of the meeting that the Council had been instrumental during the past year in placing 350 university graduates in the pulp and paper and other industries throughout the Dominion.

Finances Complete for British Columbia Mill

According to word from Vancouver, B. C., preliminary arrangements for financing the new plant of the New Westminster Paper Company, Ltd., to be erected almost immediately at a cost of approximately $2,000,000, have been completed. One of the largest and strongest Canadian financial houses has undertaken to finance the plant, which will be much larger than the one destroyed by fire last July. R. F. Arnet, vice-president and director of the company, is now in Eastern Canada working out final details of the financial structure with the principals. Plans for the new structure have been completed, and contracts for the first unit, to cost $800,000, have been let, subject to the passage of a by-law which is to be submitted to the ratepayers of New Westminster in December or January. It is proposed that the city of New Westminster shall guarantee the interest on the first $300,000 issue of bonds. The city council is now considering the proposal, and a by-law embodying it will, it is expected, be placed before the public for their approval.

F. N. Burt Co. to Build in Toronto

Working plans are scheduled to be completed in about one month in the offices of Earle L. Sheppard, architect, 307 Hamilton Trust Building, 57 Queen street West, Toronto, when tenders will be called for the erection of a large manufacturing plant and office building on Ray avenue, Mount Dennis, a suburb of Toronto, for the F. N. Burt Company, Ltd., 330 Bay street, Toronto, manufacturers of stationery, paper boxes, etc. Plans by the architect call for a one-story building, 350 feet by 175 feet, of steel frame and stone-trimmed brick face construction, saw-tooth monitor roof and low pressure steam heating. The approximate cost of the whole project is placed at $150,000.

Moore Corporation Prospering

Moore Corporation will bring to a close their first full year of operations in December and the financial statement when published will disclose the fact that the bringing under one management of the American Sales Book Company, Gilman-Fanfold Company and Pacific Burt Company, has permitted of the effecting of economies in operation and greater sales effort. It is officially stated that objectives which prompted the merging of the three companies have been achieved and the formation of Moore Corporation has been fully justified in the results. There are only a few shares of the three companies still in the hands of the public and it is hoped by the end of the year the corporation will be the sole owner of the entire capital stock of the subsidiaries. The shares not turned in for exchange are all in the hands of estates and the executors have assured the management that the exchange will be made just as soon as it is legally possible to do so.

Notes and Jottings of the Trade

With a view to familiarizing their clerical help with the paper industry and to facilitate the work of the office employees, the Howard Smith Paper Company, in their Toronto office, have adopted a policy of seeing that the clerks have an opportunity of visiting paper manufacturing plants. This week several of the young ladies of the staff were the guests of Norman Wainwright, of the Don Valley Paper Mills, Toronto, by whom they were shown through the plant and the various processes explained.

John Larkin, of Kilgours, Ltd., paper bag manufacturers, Toronto, has returned to the city after a business trip to St. Johns, N. B.

Due to a prematurely exploding dynamite charge, Stefan Kamasiewixz, an employee of the Smooth Rock Falls Division of the Abitibi Power and Paper Company, lost his life last week while at work in the block pile.

The paper machine at the Lincoln Division of Alliance Paper Mills, Ltd., which was entirely remodeled and rebuilt during the past summer, is operating with satisfaction and is now turning out an exceptionally fine line of high grade sulphite and rope tag specialties.

The booklet on "Trade Customs" in the matter of book, litho and writing papers, just issued under the auspices of the book and writing section of the Canadian Pulp and Paper Association, has been received with considerable approval by all branches of the paper trade in Canada. Particularly is this the case with the table showing the actual weights per 1,000 sheets (figures to within half a pound) of various sizes of book papers when applied to standard substance numbers. The table revises certain seeming discrepancies in the former table relating to ream weight on standard basis 1,000 sheet count, which appear to have been productive of a good deal of uncertainty and irritation to paper dealers and printers alike.

Officials of the Canadian Pulp and Paper Association visited St. Andrews East, Que., a few days ago, to view possible sites for the proposed memorial of the first Canadian paper mill, which was established in 1803. Some years ago the Technical Section of the association went to Ottawa on a similar mission, the visible result being that a section of a log once forming part of the old mill dam was dug out of the river and a clock made for it which was fitted with works and presented to the late John R. Booth. Since the National Parks Commission is interested in the renewed movement to commemorate the first paper mill in Canada it is likely that active steps toward that end will now be taken in co-operation with pulp and paper officials.

A meeting of the northern group of paper mills associated with the Ontario Pulp and Paper Makers' Safety Association has been called for December 6 to 7 at Iroquois Falls, when, in addition to two meetings, there will be an inspection of the Abitibi Power and Paper Company's mill at that place.

A number of the wholesale paper merchants of Toronto attended a dinner and meeting at the Board of Trade given by the Toronto Club of Printing House Craftsmen, when the chief speaker was Charles Conquergood, secretary-treasurer of the Canada Printing Ink Company, Ltd., who took for his topic, "The Age of Color."

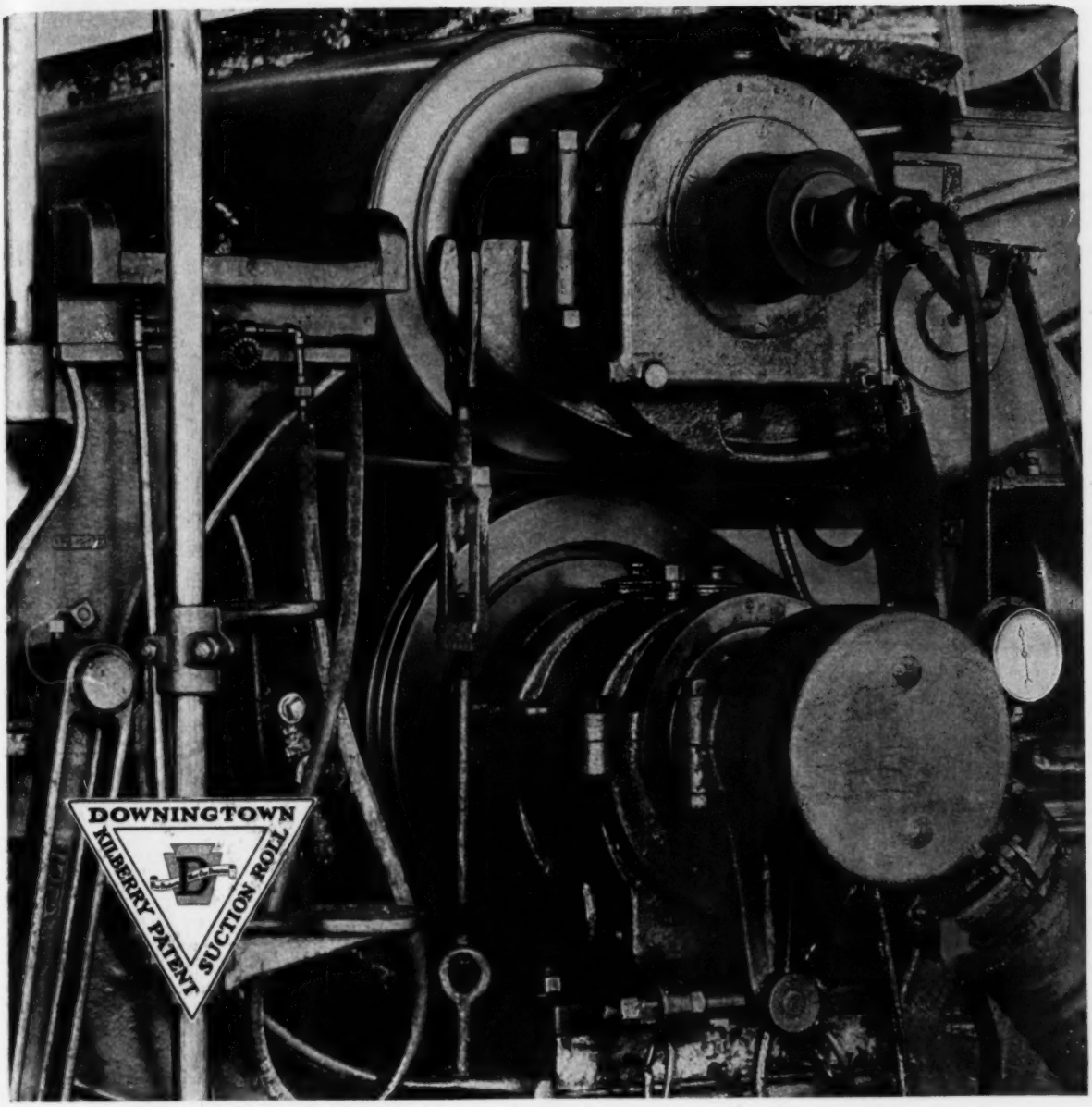
Willamette Iron & Steel Works Busy

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., November 27, 1929.—The Willamette Iron and Steel Works, of this city, will manufacture all paper mill machinery which is sold by the Appleton Machine Company of Appleton, Wis., on the Pacific Coast, according to announcement made by Ray Smythe, manager of the Willamette Iron and Steel Works. Mr. Smythe states that his company is now carrying on negotiations with other eastern concerns through which it is hoped that other connections may be made for further manufacturing contracts in Portland.

The Willamette Iron and Steel Works is now manufacturing 56 flat screens for the new plant of the Olympic Forest Products Company, at Port Angeles, which will require 15 flat cars for transportation to the destination. This equipment carries much improvement making it of the latest type and efficiency. The Olympic Forest Products Company is a subsidiary of the Crown-Zellerbach Company.

The Spaulding Pulp and Paper Company, Newberg, Ore., has just ordered two 72-inch barkers which are being manufactured at the Willamette Iron and Steel Works.



E. B. Eddy Co., Ltd., Hull, Canada, uses two Kilberry Suction Rolls

This photo shows one of their Kilberry Suction Press Rolls on a 232" news machine which was taken while the machine was running at 900 ft. per minute on 34 lb. newsprint paper. The shell of this roll is made of our Samson Bronze, to operate under very heavy pressure.

The top roll is made of granite and weighs 7 tons. Compound levers and weights produce nip pressure of 10 to 11 tons. This Kilberry Suction Roll has been in service over a year and it has required no repairs or adjustments during that time. Catalog on request.

DOWNINGTOWN MFG. CO.
DOWNINGTOWN, PA., U. S. A.

Mural Paintings for Crown Zellerbach

Samarkand, that city of colorful history and romantic associations, was the gateway through which the manufacture of paper found its way from China to the rest of the world. When the Arabs captured this ancient city they found the Chinese were making paper. They made them captives and took them along with their equipment, to Bagdad, where they introduced the making of paper, and it spread later throughout Persia.

The mural painting here reproduced shows the people of ancient Bagdad making paper in the crude manner then known. The panel shows the open vat in which the pulp was macerated, the crude hand press then used, and the manner in which they dried the finished sheets. This is the central panel on the wall of the board room of the Crown Zellerbach Building in San Francisco for which

SPANISH NOBLEMAN OF THE ELEVENTH CENTURY EXAMINING A SHEET OF HOMEMADE PAPER

MAKING PAPER IN ANCIENT BAGDAD WHERE IT WAS INTRODUCED BY CHINESE PAPERMAKERS

Warren Chase Merritt is painting ten beautiful murals depicting the growth of paper making as the knowledge of it spread throughout the then civilized world.

In the Eleventh Century the Moorish invasion brought the idea of paper making into Spain. This phase in the history of paper making is illustrated by the other reproduction of the oil painting. In this, Mr. Merritt has pictured the Spanish nobleman examining some of the first paper made in Toledo, Spain. Historians credit the Chinese with having made paper long before the development of papyrus by the Egyptians. The Chinese kept the art of paper making a secret for over six hundred years until the invasion by the Arabs.

Bailey Meter Co. in New Boston Office

The Bailey Meter Company of Cleveland, Ohio, manufacturers of power plant metering equipment, automatic combustion control and feed water regulators, announces that the rapid growth of its business in the New England States has necessitated transferring its Boston Office to new and larger quarters at 523 Public Service Building, 89 Broad Street. P. T. Reuter, who has represented the Bailey Meter Company in this territory for a number of years, will continue as Branch Manager.

Crown Willamette's Profits Up

Crown Willamette Paper Company, a subsidiary of Crown Zellerbach Corporation, reports net earnings of $1,900,661 for the six months ended October 31 after all charges, including depreciation, depletion, bond interest and Federal income tax, compared with $1,697,828 for the same period in 1928, an increase of $202,833. Consolidated earnings, including wholly owned subsidiaries and proportionate earnings of Pacific Mills, Ltd., for the six months were $2,250,219 after all charges, as against $2,196,045 for the similar period in 1928. Net profits of the company and subsidiaries for the quarter ended October 31, amounted to $1,058,294 after all charges, compared with $1,191,926 for the first quarter of the current fiscal year ended July 31.

Oswego Paper Mill Properties Inspected

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., November 3, 1929.—A tour of inspection of the mill properties of the Taggart Paper and Bag Corporation and Bates Valve Bag Company was completed this week by officials of the Carlisle interests under the direction of E. L. Dona, general safety agent of the Northern New York Utilities, and Charles E. Norris, of the St. Regis Paper Company. The inspection was made in connection with the industrial compensation law and following the visit here plants in Carthage and Watertown were inspected.

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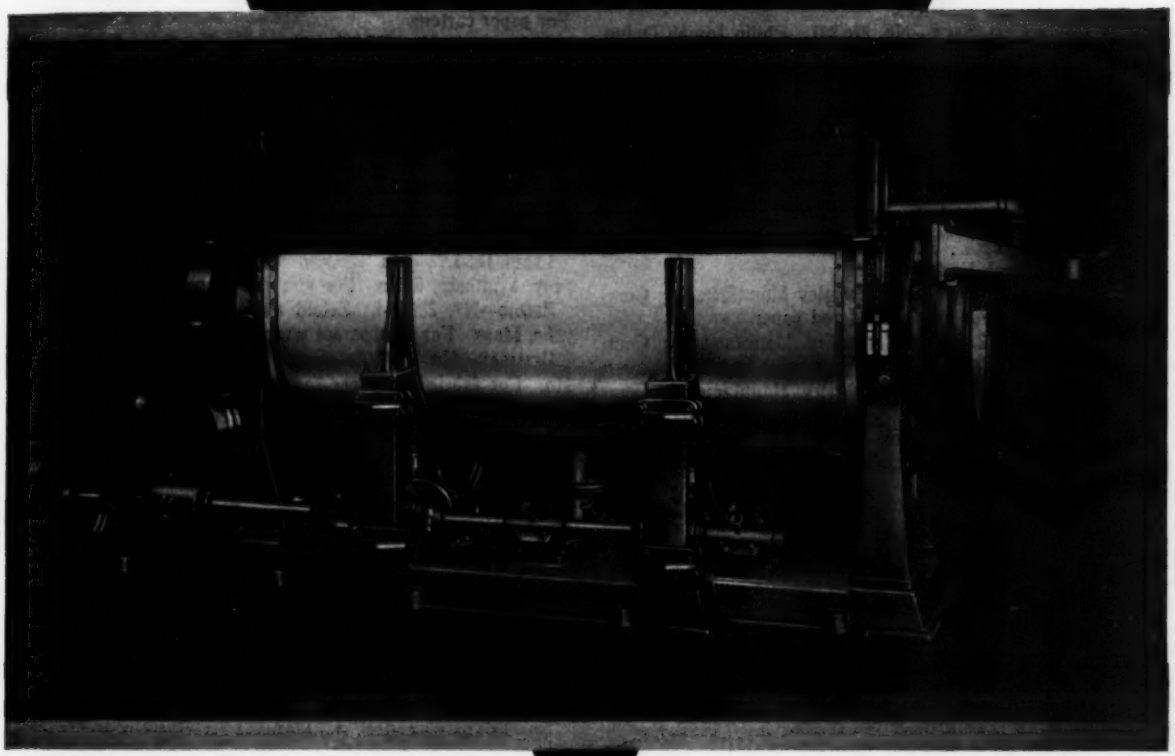

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Trade Mark Department

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The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company 900 F Street, N. W., Washington, D. C., trademark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

TEE-TOTER—No. 278,575. Volper Rogers Company, Cleveland, Ohio. For cartons and golf tees.

QUINN'S PAPER COAL SACK—No. 276,221. Philip Joseph Quinn, Lincoln, Neb. For paper sacks.

RISING—No. 285,984. Rising Paper Company, Housatonic, Mass. For bond paper, ledger paper, writing paper, cover paper, Bristols, etc.

LUXOR—No. 288,113. B. K. Elliott Company, Pittsburgh, Pa. For paper illustration boards, Bristol boards, paper boards for artists' use.

SECRETARIAL with picture—No. 280,837. Everett Pulp and Paper Company, Everett, Wash. For stenographic notebooks, writing tablets, pads, and blank books.

PLANTFLEX—No. 283,529. The Hamersley Manufacturing Company, Garfield, N. J. For supercalendered paper.

GARFLEX—No. 283,532. The Hamersley Manufacturing Company, Garfield, N. J. For transparent paper for bags.

FRUITFLEX—No. 283,533. The Hamersley Manufacturing Company, Garfield, N. J. For paper for packing fruits.

CARFTEX—No. 285,446. Carftex Company, Brighton District, Boston, Mass. For printed and embossed papers for wall decoration.

SHEERENE—No. 288,538. The Warren Manufacturing Company, New York City. For wrapping paper.

HEALTHTEX—No. 288,627. Wisconsin Tissue Mills, Menasha, Wis. For toilet paper, paper towels and napkins.

SANI-LUX—No. 288,827. Wisconsin Tissue Mills, Menasha, Wis. For toilet paper, paper towels and napkins.

RHIN HIDE—No. 283,436. Curtis 1000 Inc., St. Paul, Minn. For filing envelopes.

RAYONFLEX—No. 288,557. The Hamersley Manufacturing Company, Garfield, N. J. For greaseproof paper.

DUCOPY—No. 289,857. Vick-Far Co., Los Angeles, Cal. For carbon paper, and inked ribbons.

TYPO—No. 288,676. Union Card and Paper Company, New York City. For writing and printing paper, mailing and correspondence envelopes and cardboard.

ENVOY—No. 287,026. Strathmore Paper Company, Mittineague, Mass. For bristol board, paper and cards for announcements, etc., and envelopes.

GOTHAM—No. 289,110. Gotham Tissue Corporation, New York City. For toilet paper and paper facial tissues.

LA FONTAINE—No. 289,111. Gotham Tissue Corporation, New York City. For toilet paper and paper facial tissues.

RADIUM—No. 289,112. Gotham Tissue Corporation, New York City. For toilet paper and facial tissues.

SUNSHINE KRAFT—No. 268,210. California Oregon Paper Mills, Los Angeles, Cal. For wrapping and tray paper.

ARLAC DURODERMA—No. 282,394. Carl Fr. Brauer Gesellschaft mit Beschraenkter Haftung, Stettin, Germany. For Japanese fibrous paper, wax stencil sheets, etc.

BLUE BOOK—No. 284,923. Albert P. Cloes & Co., Inc., Seattle, Wash. For books for accounting and bookkeeping systems.

W H S L CO. INC. SPE ET LABORE with fanciful design.—No. 285,360. W. H. S. Lloyd Co., Inc., New York City. For wall paper.

KARBALTO—No. 286,023. Brittains, Ltd., Cheddleton, England. For tissue paper generally.

SECKARB—No. 286,024. Brittains, Ltd., Cheddleton, England. For tissue paper generally.

BEST—No. 289,107. Gotham Tissue Corp., Bronx, N. Y. For toilet paper and facial tissue.

CHECKER—No. 289,108. Gotham Tissue Corp., Bronx, N. Y. For toilet and facial tissues.

GRAND-TEX—No. 289,621. Fort Howard Paper Co., Green Bay, Wis. For toilet paper.

FILENE'S—No. 289,738. Wm. Filene's Sons Company, Boston, Mass. For writing pads, writing paper, fountain pens, pencils, desk sets, etc.

CHINKY-ZU—No. 286,941. Paul Kohloff, Mamaroneck, N. Y. For paper cartons.

LIGHTNING—No. 287,981. Specialty Envelope Company, Newport, Ky. For envelopes and writing paper.

ENGRAVERS—No. 289,376. Union Card and Paper Company, New York City. For writing and printing paper, mailing envelopes, and cardboard.

WOLF—No. 281,075. Continental Carbon Corporation, Chicago, Ill. For carbon paper.

ENGRAVO BOND—No. 283,393. The Edwards & Franklin Company, Cleveland, Ohio. For bond paper.

FLEUR-DE-LYS—No. 285,999. Waltham Bag and Paper Company, Waltham, Mass. For wrapping paper.

ZELOID—N*. 288,044. Zeloid Products Corporation, Inc., Holyoke, Mass. For transparent wrapping paper.

BEMISAX—No. 288,101. Bemis Bro. Bag Company, St. Louis, Mo. For fabric and paper bags and sacks.

BEMITEX—No. 288,102. Bemis Bro. Bag Company, St. Louis, Mo. For fabric and paper bags.

MOERSHIRE—No. 289,855. The Union Paper and Twine Company of Michigan, Detroit, Mich. For bond paper for writing and printing purposes.

Fred H. Haile Passes On

[FROM OUR REGULAR CORRESPONDENT]

GOUVERNEUR, N. Y., November 30, 1929.—Fred H. Haile, pioneer pulp and paper manufacturer of Northern New York, died this week at his home here from the infirmities of old age. He was 86 years old. His connections with the pulp industry began in 1885 when he erected a mill at Fullerville where he was regarded as one of the leaders in the business. Associated with him were Edward Jenne, Sidney Austin and Charles Fuller. The company operated for many years and a great amount of land was cleared in turning out large quantities of pulp. He was also active in the talc industry and at one time operated a talc mill and mines near Fowler.

He also played a prominent part in financial circles serving as president of the First National Bank at Gouverneur for many years. Rated as a business man of rare ability and keen judgment his talents made him wealthy when a young man and in late years he had lived a retired life. He was also a veteran of the Civil War retiring from service with the rank of major. A son and a daughter are the survivors.

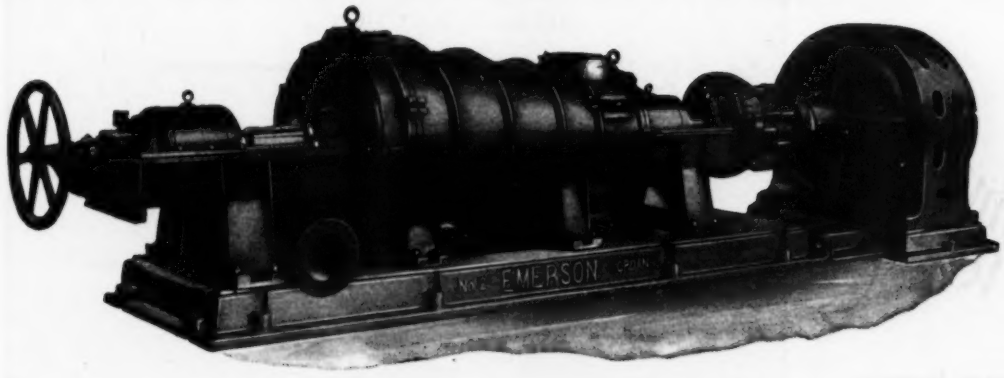
Paper Industry Helps Lawrence College

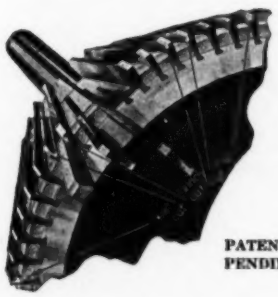
[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—Gifts totaling $15,500 have given Lawrence College, Appleton, Wis., an auspicious start in establishing a research and reference library in connection with the institute of paper chemistry now being organized there. Anonymous donors provided this sum because of their interest in the institute, according to Dr. Henry Merritt Wriston, president.

A full time librarian has been employed and the college already is gathering together the publications and records necessary for the institute. The institute itself will start in February, 1930, financed by a fund of $300,000 given by nearly all the paper mills in Wisconsin. Dr. Otto Kress, nationally known chemist and technician, is director of the institute.

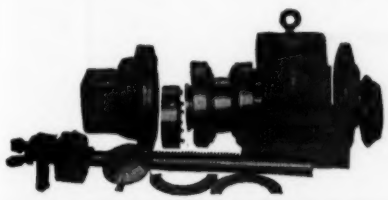
The EMERSON JORDAN
equipped with the
Bolton INVERTED WEDGE Plug





PATENTS PENDING

Showing construction of the Bolton Inverted Wedge Plug. Knives and woods cannot come out. Note Inverted Wedges.



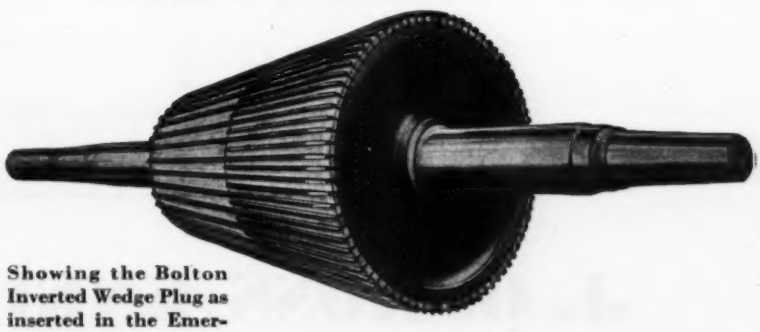
Detail of Timken end bearing which takes care of both radial and thrust.

Now every Emerson Jordan offers you the tremendous advantages of the Bolton INVERTED WEDGE Plug and Timken Roller Bearings.

These two great features put the Emerson Jordan in a class by itself for unit control, lasting satisfaction and true economy. No other Jordan has these great construction advantages.

Make sure of all the benefits and savings that result from these two wonderful improvements in Jordan engineering. Standardize on Emerson Jordans.

Write for full information and estimates



Showing the Bolton Inverted Wedge Plug as inserted in the Emerson Jordan above.

The EMERSON MANUFACTURING COMPANY
LAWRENCE ∾ ∾ ∾ MASSACHUSETTS
DIVISION OF JOHN W. BOLTON & SONS, Inc.

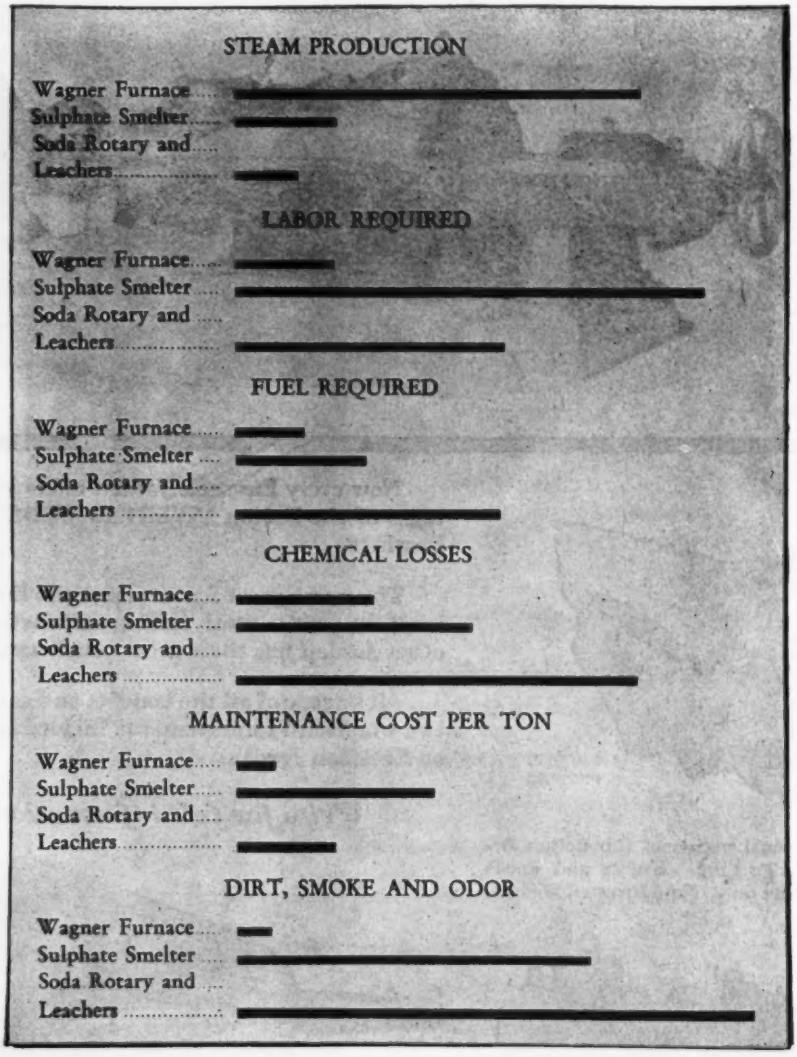
3492

THE WAGNER FURNACE

FOR SODA AND SULPHATE PULP MILLS

Comparative Results

Wagner Furnace and Rotary Systems



U. S. and Foreign Patents

J. O. ROSS ENGINEERING

Chicago ***Main Office***

In Canada– Ross Engineering of Canada, Limited

THE WAGNER FURNACE

A Repeat Order

The Brown Paper Mill Co., Inc.
Monroe, La.

Has Ordered

8

Additional Furnaces
for extension to present
Kraft Mill

Granted and Pending

CORPORATION — *Sole Licensees*

122 East 42nd Street, New York City ***Portland, Ore.***

In Europe — Ernest Scott & Company, Ltd.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Springfield, Mo.—The Springfield Tablet Manufacturing Company, 214 South Jefferson street, manufacturer of pads, tablets and other commercial paper goods, has closed bids for proposed new plant unit on North Jefferson street, and will award general contract at early date. The plant will be two-story, L-shaped, 60x120 feet, with one-story extension, 50x60 feet, and is reported to cost close to $50,000, with equipment. Baldwin & Baldwin, Magnolia Building, Oklahoma City, Okla., are architects. Harry S. Jewell is one of the heads of the company.

Bucksport, Me.—The Maine Seaboard Paper Company, recently organized by Walter S. Wyman, president of the Central Maine Power Company, 317 Water street, Augusta, Me., and associates, has authorized the immediate construction of a new pulp and paper mill at Bucksport, to specialize primarily in the production of news print. The plant will consist of several units, with boiler house, machine shop and auxiliary mechanical structures, and will be equipped for an initial output of 270 tons per day. It is reported to cost in excess of $5,000,000, with machinery. Hydro-electric power will be available from the development now under way by the Central Maine Power Company at the Bingham dam, and transmission line will be constructed to a sub-station to be located at the mill site. The company has secured rights to about 400,000 acres of timber land in the eastern part of Maine, and will utilize for raw material supply. A lumber and logging project will be carried out in the near future for this purpose.

Bradford, R. I.—The Bradford Box Manufacturing Company, manufacturer of cardboard boxes and other containers, is said to be planning early rebuilding of portion of plant, destroyed by fire, November 26, with loss reported at close to $20,000, with equipment. Building occupied was leased from Howard B. Perkins, Westerly, R. I.

Kimberly, Wis.—The Kimberly-Clark Company, 128 North Commercial street, Neenah, Wis., has closed bids on general contract for proposed new mill addition, recently referred to in these columns, and will make award at an early date. It will be one-story, 122x127 feet, equipped primarily as a finishing department, with portion to be given over to storage and distributing service, reported to cost more than $100,000, with equipment. The O'Keefe-Orbison Engineering and Construction Company, 201 East College avenue, Appleton, Wis., is engineer.

Port Angeles, Wash.—The Olympic Forest Products Company, Port Angeles, has awarded a contract to the Willamette Iron and Steel Works, Front street, Portland, Ore., for a quantity of machinery, including screens, etc., to an amount of about $100,000, for its proposed new local pulp mill, on which work has been placed under way. The equipment is scheduled for early delivery. The new plant will consist of two main units, 150x370 feet, and 50x257 feet, respectively, and will be equipped for an initial rating of about 500 tons of pulp per day. General building contract recently was awarded to Christopher Kuppler, Port Angeles. The entire project is estimated to cost about $1,200,000.

Moraine, Ohio—The Moraine Box Company, Kreitzer Road, manufacturer of cardboard boxes and other containers, has plans for a new addition to plant, to be one and two-story, brick and concrete, 112x120 feet, reported to cost more than $70,000, with equipment. It is expected to begin super-structure at an early date. Schenck & Williams, Third National Bank Building, Dayton, Ohio, are architects, in charge.

New York, N. Y.—J. Rentez Haney and John Rieger, 17 East 42nd street, have organized a new company under the name of J. R. Haney, Inc., and plan early operation of local plant for the manufacture of paper containers, cartons, etc. Leslie E. Freeman, 2 Rector street, New York, attorney, is company representative.

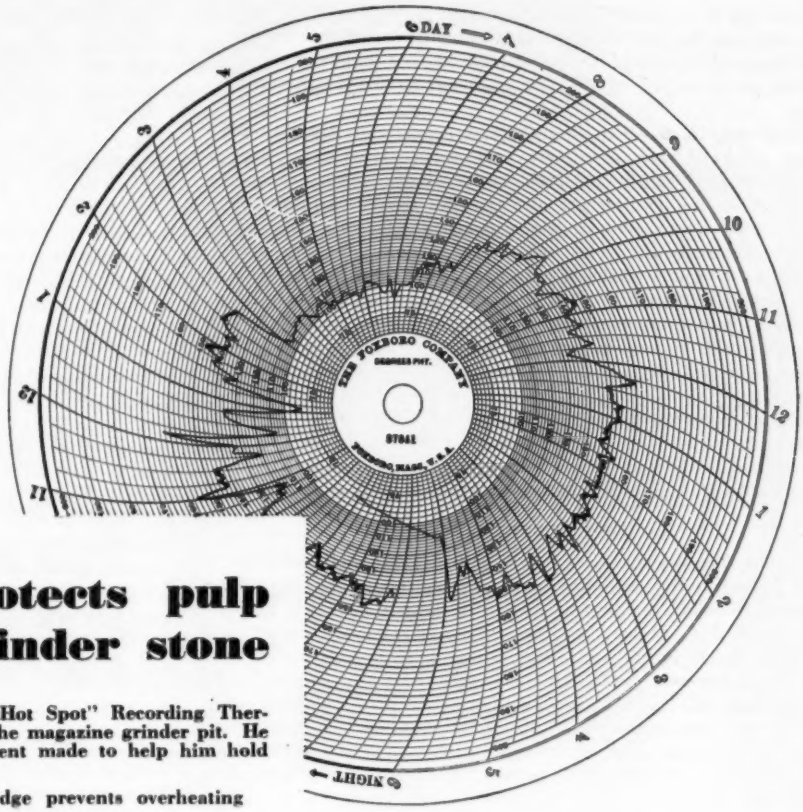
Housatonic, Mass.—The Rising Paper Company, a subsidiary of the Strathmore Paper Company, Mittineague, Mass., has closed bids on general contract for its proposed new mill addition, three-story, 75x180 feet, to be used for increased capacity in the finishing department, reported to cost close to $100,000, with equipment. List of machinery to be installed will soon be arranged. L. Howes is company architect, in charge.

Detroit, Mich.—The National Automotive Fibres, Inc., San Francisco, Cal., is making ready for maximum operations at its recently completed plant at Detroit, and expects to give employment to a full working quota at an early date. The plant is located on a 10-acre tract of land, with initial unit totaling about 48,000 square feet of floor space. The company is running on a good production basis at its San Francisco plant, and will continue on such schedule for an indefinite period.

Carthage, N. Y.—The National Paper Products Company, a division of the Crown Zellerbach Corporation, San Francisco, Cal., has work in progress on extensions and improvements in the local mill of the West End Paper Company, recently acquired, and will remodel a considerable portion of the plant. Additional equipment will be provided for increase in former capacity. The entire development is scheduled for completion in about sixty days, and is reported to cost more than $100,000, with equipment.

Marerro, La.—The Celotex Company is running on a capacity schedule at its local insulating board mill, giving employment to full working quota and will hold to this basis for an indefinite period. Heavy demand is reported for export account and there is noticeable increase in shipments for this purpose compared with this time a year ago. Headquarters are at 645 North Michigan Boulevard, Chicago, Ill.

San Francisco, Cal.—The Crown Zellerbach Corporation, San Francisco, has issued a total of 780,000 additional shares of stock, no par value, and will use proceeds in part for general financing and expansion, including development program now under way at a number of plants. At its mill at Camas, Wash., the company will carry out an important expansion and improvement schedule, to provide for considerable increase in present output. New units will be built and additional equipment installed, reported to cost close to $1,000,000. This property is operated under the name of the Crown Willamette Paper Company. Another development now



This chart protects pulp quality and grinder stone

GIVE your operator a Foxboro "Hot Spot" Recording Thermometer with bulb installed in the magazine grinder pit. He will then have the best equipment made to help him hold pulp at the right temperature.

This accurate temperature knowledge prevents overheating and glazing of the grinder stone.

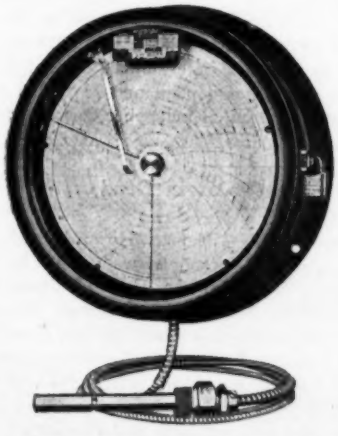
It does away with the chance of lifeless stock that has no paper-making qualities.

It definitely prevents temperature fluctuations that crack the stone.

The above record was made by a Foxboro Hot Spot Recording Thermometer in a grinding pit of the Port Alfred Pulp and Paper Company. It is a complete check on the process. Notice the temperature conditions of the morning as compared with the afternoon.

Afternoon conditions were practically ideal. Fluctuations were small. The operator used this Instrument to advantage.

In three Quebec plants—Port Arthur Paper Co., Ste. Anne Paper Co., Spruce Falls Power and Paper Co., Foxboro is saving time and expense and helping to make better quality pulp and paper. We can do the same for you. A letter will bring our engineer. Put the job into his hands. Write to-day.



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THE COMPASS OF INDUSTRY

INSTRUMENTS *for* CONTROLLING, RECORDING *and* INDICATING TEMPERATURE, FLOW, HUMIDITY *and* PRESSURE

under way is at Ocean Falls, B. C., where the Pacific Mills, Ltd., another subsidiary, is now operating. This work will include new buildings and equipment for considerable advance in present rating. These programs are expected to be completed during the coming year.

Chatham, N. B.—The International Power and Paper Company, Montreal, Que., an interest of the International Paper Company, 100 East 42nd street, New York, is said to be concluding negotiations for the purchase of a tract of land at Chatham as a site for the construction of a new pulp mill. As now projected plant will consist of several units to be equipped for an output of about 100 tons of sulphite pulp per day. It is understood that work will be placed under way during the coming year. The company is pushing construction of its new news print mill at Dalhousie, N. B., and machinery installation is now in progress. This plant will be equipped for an output of about 500 tons of material per day, and is expected to be ready for operation during the coming spring. Power for mill service will be secured from the Grand Falls hydro-electric power plant of the St. Johns River Power Company, about 100 miles distant, and transmission line has been arranged for this purpose.

New Companies, Etc.

Dallas, Tex.—Verhalen Paper Company, 1001 Burt Building, has been incorporated with capital not stated, to deal in paper stocks, etc. The company is headed by Walter Verhalen, president; and E. C. Balaam, Harlingen, Tex., manager of company.

New York, N. Y.—The Elder Paper Company has filed notice of company dissolution under state laws.

Chicago, Ill.—H. & S. Sales Corporation, 1553 West Madison street, has been incorporated with capital of $10,000, to manufacture and deal in paper boxes and containers. The company is represented by Doherty & Fitzpatrick, 109 North Dearborn street, Chicago.

Receiver for Unity Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., November 30, 1929.—Following application of the Unity Paper Mills to the United States Court for appointment of a receiver in equity it was announced that Arthur A. Martin and Bernard Wade had been selected. The receivers plan to continue the operation of the plant and it is understood that the new arrangement will be carried out until the firm is free of its financial difficulties. It is understood that action in the request for appointment of a receiver in equity followed increased financial entanglements in which the company found itself. Several months ago a bond issue of $200,000 was floated by the company. About $25,000, however, remains on a prior bond issue secured by a first mortgage and the present action, it is said, was precipitated by banking institutions holding the second lien.

Claims against the firm cannot be prosecuted for the present under the terms with the court. The receivers have taken charge of the plant and within a month will file with the court a report showing the liabilities and assets. The plant is equipped with one machine and turns out high grade book and ledger papers bearing the union trade mark. The property is well situated for manufacturing and shipping facilities and some time ago it was remodeled and an addition built to accommodate the growing business.

Chase Bag Co. to Erect New Plant at Goshen

CLEVELAND, Ohio, November 30, 1929.—The Chase Bag Company, New York, has awarded a contract to the Austin Company, of Cleveland, industrial architects and builders, for the design and construction of a new $100,000 manufacturing unit at Goshen, Ind.

The new unit will be 120 by 332 feet. Its construction will require 100 tons of structural steel. The present building of the bag company at Goshen will be used for warehouse purposes upon completion of the new unit.

New England Power Construction

New England Power Association, controlled by International Hydro-Electric System, a division of International Paper and Power Company, is spending $42,000,000 for construction in 1929 and 1930. The association's program involving these expenditures was mapped some time ago and has not been curtailed as a result of the recent action of the securities markets.

New construction is taking $40,250,000 of this amount, or 96 per cent, while the balance, $1,750,000, is being expended for replacements. In addition to these appropriations for construction, the association's program calls for an outlay on maintenance of existing plants of $6,900,000 in the two years.

Next year's expenditures of the association for construction work will aggregate about $20,000,000, which will be distributed as follows: $11,000,000 in New Hampshire and Vermont; $6,000,000 in Massachusetts; and $3,000,000 in Rhode Island.

A large portion of the outlay is going toward the construction of the association's Lower Fifteen Mile Falls hydro-electric development on the upper Connecticut River. This plant will have a capacity of 200,000 h.p. and is expected to be in operation October 1 of next year.

The output of electric energy by the association month by month this year has shown steady growth over last year, and the demand for energy continues to increase at a very healthy rate. In the first nine months the output of the plants of the association was 14.9 per cent over their output in the corresponding period of last year. This compares with an increase of 11.5 per cent in the output of all utility power plants in the United States in the same period.

Pacific Mills To Change Mill Site

A dispatch from Vancouver confirms the news that the extensive converting plant of Pacific Mills, Ltd., will be moved from Ocean Falls, B. C., to Vancouver. It is understood that plans for the establishment of the company in the city are held in readiness for immediate execution. The matter of location had been gone into, a site had been secured and a decision on this and other matters pertaining thereto will be arrived at in a day or two.

Pacific Mills' parent plant is at Ocean Falls, approximately 400 miles north of Vancouver. It is regarded as one of the chief paper-making plants of the Pacific coast and is rapidly being extended to larger production. During the present year more than $2,000,000 has been expended in new buildings and equipment, bringing the total investment at Ocean Falls close to $20,000,000.

The paper converting plant to be erected at Vancouver will cover a wide field of manufacture. Finished products will include waxed papers, wrappers, paper napkins, paper towels and other specialties.

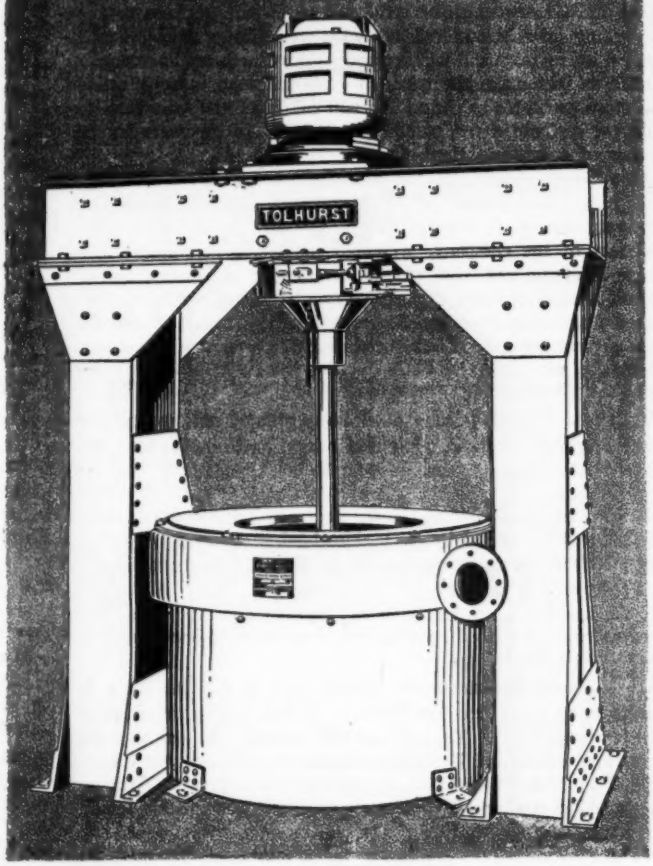
The basic material will continue to be manufactured at Ocean Falls for shipment to Vancouver for the highly specialized purpose required. It is estimated that approximately 30,000 feet of floor space will be required for the proposed plant and 75 to 100 employees will be employed with the initial unit when it commences production within the next few months.

Thomas Howard Baldwin Dead

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 2, 1929.—Thomas Howard Baldwin, a director in the Samson Cordage Works, and well known in the paper industry, died Friday, November 29, after an illness of several months at his residence, 542 Cambridge street, Allston, Mass. Mr. Baldwin was in his eighty-first year. He was formerly president of the firm of Decatur & Hopkins, hardware dealers here, but had been retired for the last twenty years. He was the founder of the firm of Baldwin & Robbins, later changed to Decatur & Hopkins. He was also vice president and director of the Arthur W. Wood Co., investment brokers. A daughter, Mrs. George Root, Newport, Vt., is living. He was a member of the Dalhousie Lodge of Masons.

CLEAN PAPER



CLEAN PAPER—BETTER FORMED, STRONGER PAPER—AND DEFINITE PRODUCTION ECONOMIES AS WELL

The Tolhurst Centrifugal for paper and pulp preparation makes perfectly clean, perfectly formed paper an actuality. What a mile of rifflers cannot do, the Tolhurst does quickly, continuously, conveniently and economically. All foreign substances, whether heavy or light, large or microscopic, are eliminated from the paper stuff. The fibre bundles, as they pass through the machine, are broken up without shortening the fibre, and a better formed sheet is assured through this brushing out action.

Centrifugally cleaned stuff not only means perfectly clean and stronger paper—it means greater efficiency from felts and wires as well.

For full particulars, write for Bulletin today.

DESIGNED AND BUILT BY SPECIALISTS

This machine is made under license of the Centrifugal Engineering and Patents Corporation, holders of the Erkensator Patents.

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TROY, N. Y.

New York Office: 30 Church St.
Chicago Office: 8 So. Dearborn St.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 2, 1929.—John Carter & Co., Inc., has purchased the "merchandise and good-will" of the Stone & Andrew Company. Announcements are being sent today to the trade in New England, to other paper merchants in New England, and to the mill connections of both houses. In an announcement to the salesmen, A. C. Hall, treasurer and general manager of John Carter & Co., Inc., says: "Leon M. Poore, general manager and one of the owners of the Stone & Andrew Company, will come into the organization as director of sales. This plan has been worked out with the co-operation and advice of Harrie E. Waite. Upon Mr. Waite's return, which we all hope will be soon, he will become merchandise manager to develop a new department, and to create and foster a spirit of good-will within our organization, as two selling forces are united into what we believe will be a happy spirited selling team and will promote such refinements in customer service as will make the work of each salesman more effective and more profitable to them. He will continue, as in the past, to endeavor to build that 'Customer-Good-Will,' so necessary to the success of a business these days."

At a recent meeting at the Chamber of Commerce Building, held under the auspices of the Strathmore Paper Company, of Mittineague and Woronoco, Mass., Col. B. A. Franklin, vice president of the company, presented the Giant Strathmore Envelope Program for 1930 to the Strathmore representatives in Boston—Arnold-Roberts Company, Cook-Vivian Company, Carter, Rice & Co. Corporation, and Storrs & Bement Company. Among those present from the Strathmore organization were Harry Riegs, advertising manager, and F. A. Juckett, who is in charge of the Old Colony Division.

Rutter & McNught, Inc., have been granted an agency for Wheelwright B. P. F., in white and colors, made by the Geo. W. Wheelwright Paper Company, North Leominster and Wheelwright, Mass.

The November number of "How," issued by Tileston & Hollingsworth Company, edited by A. V. Howland, contains a tribute to Edgar Nelson, secretary manager of the Boston Typothetae Board of Trade, who is stepping out of the printing affairs of Boston. Mr. Nelson has been secretary of the Boston Typothetae for twenty years, but with Mrs. Nelson is going back to their farm in Central New York.

W. M. Kennedy has become connected with Knight, Allen & Clark. Some years ago Mr. Kennedy was in the paper business with his father, S. M. Kennedy, in Philadelphia. At one time he represented Storrs and Bement in Philadelphia and was later with the J. P. Jordan Paper Company. Before coming to the firm of Knight, Allen & Clark, Mr. Kennedy was with the Florida Paper Company, Jacksonville, Fla.

Chicago Paper Market Fairly Steady

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 30, 1929.—Thanksgiving Day and below zero temperature on Friday put a slight crimp in this week's sales in Chicago. Despite this fact paper merchants are looking for December 1 as the logical opening for a successful holiday season. Reports from various lines of paper indicate that the volume of business is fair and the market broadening out as Christmas approaches.

News print is steady and strong with mills running only slightly below capacity and demand proving good. The book market is steady while the cover market is also reported satisfactory. Fine papers in general and the higher priced grades especially are going into one of their best seasons with the tone fairly good. Board continues to experience a steady demand but the price situation, though slightly improved, continues to be the one unsatisfactory condition in this market.

Tissues are strong, the holiday business beginning to speed up demand. Wrapping papers are also improving, with a splendid market anticipated at least from now until the new year. Ground woods are strengthening up as a scarcity of raw materials becomes more and more evident. The strong market slipped only slightly last week when some reserve stock was placed on the market and not immediately absorbed.

Freight Discrimination Alleged by St. Regis

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., November 30, 1929.—Joseph A. Quinlan, general traffic manager of the St. Regis Paper Company, declared that news print manufacturing companies in this state were being discriminated against in freight rates to the advantage of competing railroad companies in the Middle West and Canada at a hearing before the Interstate Commerce Commission held during the week in Atlantic City. Testifying at the hearing relative to a general revision of freight rates on news print Mr. Quinlan said he only knew of conditions within his state but "knew plenty about that." He also stated that manufacturers in Wisconsin, Minnesota, Canada, and New England, all enjoyed a preferential rate that he believed should be available to his company as well as others in the eastern section of the country.

Others giving testimony at the hearing included Denver A. Busby, of Chicago, Paul F. Wehner, of Crestwood, N. Y., and W. A. Gordon, statistician employed by the New Haven Railroad. During the hearing officials of New England railroads made the assertion that freight revenues obtained on news print from New England mills to New York was not commensurate with the work involved.

Pejepscot Awarded Big Tax Refund

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 4, 1929.—The Bureau of Internal Revenue has refunded to the Pejepscot Paper Company, New York City, $67,250.22 as an over assessment of income and excess profits taxes collected for the year 1917. A hearing was held in this case on September 25 of this year. H. F. Mires, Acting Commissioner of Internal Revenue, in explaining the decision, says:

The amount of $46,038.70 included in the above over assessment is due to the correction of an administrative error whereby a duplicate assessment is eliminated.

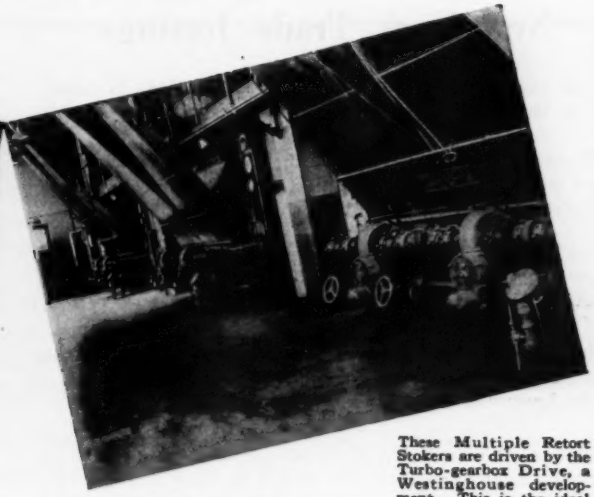
The amount of $12,470.25 and the balance of the over assessment amounting to $8,741.27 are caused by the allowance of additional deduction for depreciation and depletion, respectively, since after a thorough and extensive field investigation of the taxpayer's books and accounts and records and an examination of the properties by Bureau engineers, it is determined that the reasonable deductions computed on the valuations established are in excess of the amounts allowed in a prior audit of the case. Revision is made accordingly.

Litchfield Mill Buildings Sold

[FROM OUR REGULAR CORRESPONDENT]

FRANKFORT, N. Y., November 30, 1929.—The municipal authorities here have disposed of the mill buildings on the property of the former Litchfield Paper Company to the Superfine Paper Mills, of Clayville, for $500, reserving the concrete building on Moyer Creek which for the present will be utilized for warehouse purposes. The contract stipulates that the buildings be removed and the grounds cleared of debris by April 1. The municipality had previously advertised for bids for the removal of the buildings but at the time these were opened the village board decided that it should be reimbursed for the structures rather than pay for their removal and the contract with the Clayville paper firm resulted. Negotiations were carried on through Fred J. Tine.

Single Retort Stokers in a paper mill—a highly efficient stoker for boilers up to about 500-horsepower.



These Multiple Retort Stokers are driven by the Turbo-gearbox Drive, a Westinghouse development. This is the ideal drive for paper mill applications.

"Pounds of coal *per* ton of paper"

—That's what the paper mill operator considers—whether or not the cost of steam generation is as low as it should be.

Modern stokers—even when applied to existing boilers—have produced surprising results in lowering the number of pounds of coal required per ton of paper. They increase the steam output without adding to the boiler capacity already installed. At the same time, they reduce the coal consumption per unit of steam generated. They render the steam more effective by keeping the supply up to the demand and by maintaining uniform pressure and temperature.

Westinghouse Stokers are producing splendid results in many mills, both large and small, of the pulp and paper industry. These are modern stokers—designed and built for dependable and efficient operation—to reduce the cost of the finished product.

Numerous well-equipped and efficiently-manned Service Shops throughout the country assure prompt SERVICE to purchasers of Westinghouse products.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
SOUTH PHILADELPHIA WORKS PHILADELPHIA, PA.
SALES OFFICES AND SERVICE SHOPS IN ALL PRINCIPAL CITIES

Westinghouse

T 30770

Products for the Pulp and Paper Industry include . .

Automatic Electric Babbitt Pots
Circuit-breakers
Fans
Instruments and Meters
Lighting Equipment
Line Materials
Micarta Gears
Motors and Control
Sectional Drive Equipment
Stokers
Switchboards
Turbine-generators

New York Trade Jottings

C. B. Cesar, managing director of the E. B. Eddy Company, at Hull, Quebec, spent several days in New York last week.

* * *

Thomas J. Burke, secretary of the Cost Association of the Paper Industry, is at present visiting various mills in the vicinity of Buffalo.

* * *

John D. Rue, of the News Print Service Bureau, is attending a meeting of the American Institute of Chemical Engineers, at Asheville, North Carolina.

* * *

The New York Curb Exchange has admitted to unlisted trade privileges one million shares of common stock, no par value, of the St. Lawrence Paper Mills Company.

* * *

Harry A. Raynor has recently become associated with the Frank L. Scott Company, Inc., of 270 Madison Avenue, New York, and incidentally wishes to thank all those interested for their cooperation and business in the past.

* * *

The weekly meeting of the New York Division of the Salesmen's Association of the Paper Industry was held at the Fraternities Clubs Building on Monday, December 2. A talk by G. A. Renard, secretary of the National Association of Purchasing Agents, gave an interesting new angle on the problem of distribution.

* * *

The 110 district managers and representatives comprising the field organization of Oakite Products, Inc., met in the general offices in New York, November 20-23, on the occasion of their 21st Year Annual Sales Conference. Every section of the United States and Canada is represented by this organization, so that the daily discussions covered every conceivable kind of cleaning work. There was ample opportunity for exchange of ideas on all subjects relating to cleaning. This was augmented by special laboratory demonstrations made by the office technical and laboratory staff, as well as by those men who have made certain fields their special study. Oakite Products, Inc., takes a similar opportunity every year to acquaint each of its men with every improvement in cleaning equipment and cleaning methods, so that everyone is equally qualified to handle effectively any cleaning problems submitted to him.

New Controller For Low-Head Cranes

The General Electric Company announces a new self-contained, triple drum controller with a resistor mounted on the back, for the floor operation of the three motions of small, low-head cranes. The general construction is similar to that of the standard General Electric line, with rope wheel having spring return, vertical or horizontal handle all interchangeable. The horizontal handle arrangement is provided in case it is desired to install the controller in a crane cab for the usual method of manual operation. In such an installation the resistor can be separated from the drum switches, which is necessary if all three motors are rated the full 10 h.p. rating of the controllers.

Dyestuffs for Coloring Paper

The General Dyestuff Corporation, of 230 Fifth avenue, New York, have just published an exceptionally attractive and artistic new Color Book entitled "Dyestuffs for Coloring Paper."

The prominent features of this book are: 1—The dyeings were made on a regular fourdrinier machine. 2—The classification list is very comprehensive and will prove of great help to paper mill chemists and superintendents in selecting the proper colors for special purposes.

Pulp and Paper Industry Thrives

The billion dollar pulp and paper business of the United States shows a steady increase, according to the latest compiled reports of the New York State College of Forestry at Syracuse University. Since 1921 the industry has been increasing in number of establishments, wages paid and value of products. While the percentage of increase has been slowing down as would naturally be expected, the actual expansion in value of products has been pretty uniformally maintained since 1921. Values added by manufacture between 1924 and 1927 show an increase of $47,000,000 as compared with an increase of $33,000,000 between 1923 and 1925 and $13,000,000 between 1919 and 1921.

The State of New York leads in total value of paper products. It has a great variety of manufactures. Michigan coming next and Massachusetts, Wisconsin, Maine, Ohio and Pennsylvania in order. Massachusetts is only slightly ahead of Wisconsin. Massachusetts, however, employs more persons in the industry than Michigan, which ranks ahead of Massachusetts in value of paper products. New York leads in number of industries, but Maine makes more news print than any other state and Michigan more paper board products. Almost three times as much paper is made into paper boards measured by weight as is fabricated into any other paper product. Maine leads in the production of newsprint. New York ranks second in the manufacture of newsprint and fourth in paper boards.

Spruce is the principal wood used in the manufacture of paper. Large quantities of hemlock are also consumed as this wood ranks next to spruce in volume of material from which pulp is made. Consumption of pulpwood has not increased according to the last published government reports. In fact, it fell off slightly in 1927 which is the last year for complete figures on the situation in the United States.

New Colors for Coated Papers

The Dyestuffs Department of the E. I. du Pont de Nemours & Co. is placing on the market a new line of fast colors especially prepared for wall paper printing and coated papers. These products are being marketed under the name of Durotone colors. They possess the extreme fastness of the vat colors heretofore offered but are brighter in shade and have more satisfactory working properties.

The Durotone colors are all paste colors offered in a form which makes it only necessary to mix them in the regular printing paste for the wall paper trade or coating pastes for coating paper, without any precipitation or other chemical treatment.

These products will meet the standard adopted by the wall paper industry in conjunction with the Bureau of Standards covering fastness requirements for wall papers. The minimum light fastness permissible under these specifications is twenty-four hours Fadeometer exposure without noticeable change. These colors are also fast to alkali.

The line now consists of: Durotone Pink B Paste, Durotone Brown OY Paste, Durotone Yellow R Paste, Durotone Blue G Paste. These will very shortly be augmented by the addition of other colors.

Large Pulpwood Consignment for Hudson Falls

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 30, 1929.—Arrival of several carloads of pulpwood from the Canadian logging areas is expected daily at the plant of the International Paper Company where officials announced that there is only a few days' supply on hand. A single pile of pulpwood in the big empty yard of the company is being used for the plant and also the Curtis mill. It was learned that several hundred carloads of pulpwood are on the way to the mill and a large force of men are awaiting the goods in order to facilitate handling. About 940 men are now being employed and operations have been increased in the ground wood and press room departments.

FINE products—like great men—do not require an elaborate story about their virtues. They are recognized without it.

In nearly every industry there are leaders who can rely upon the intrinsic merits of their products without regarding the necessity for high pressure methods of selling.

The fact that there are so many VALLEY Beaters in service today is due, chiefly, to one thing: *every beater which leaves our factory is designed and built to properly perform the particular type of beating for which it is intended—and do so over a long period of time with a minimum of maintenance and operating cost.*

If you are thinking about a new beater or dissatisfied with the results you are getting from your present installations, write us for complete data on our High Speed and Holland Beaters.

VALLEY IRON WORKS COMPANY
Appleton, Wisconsin

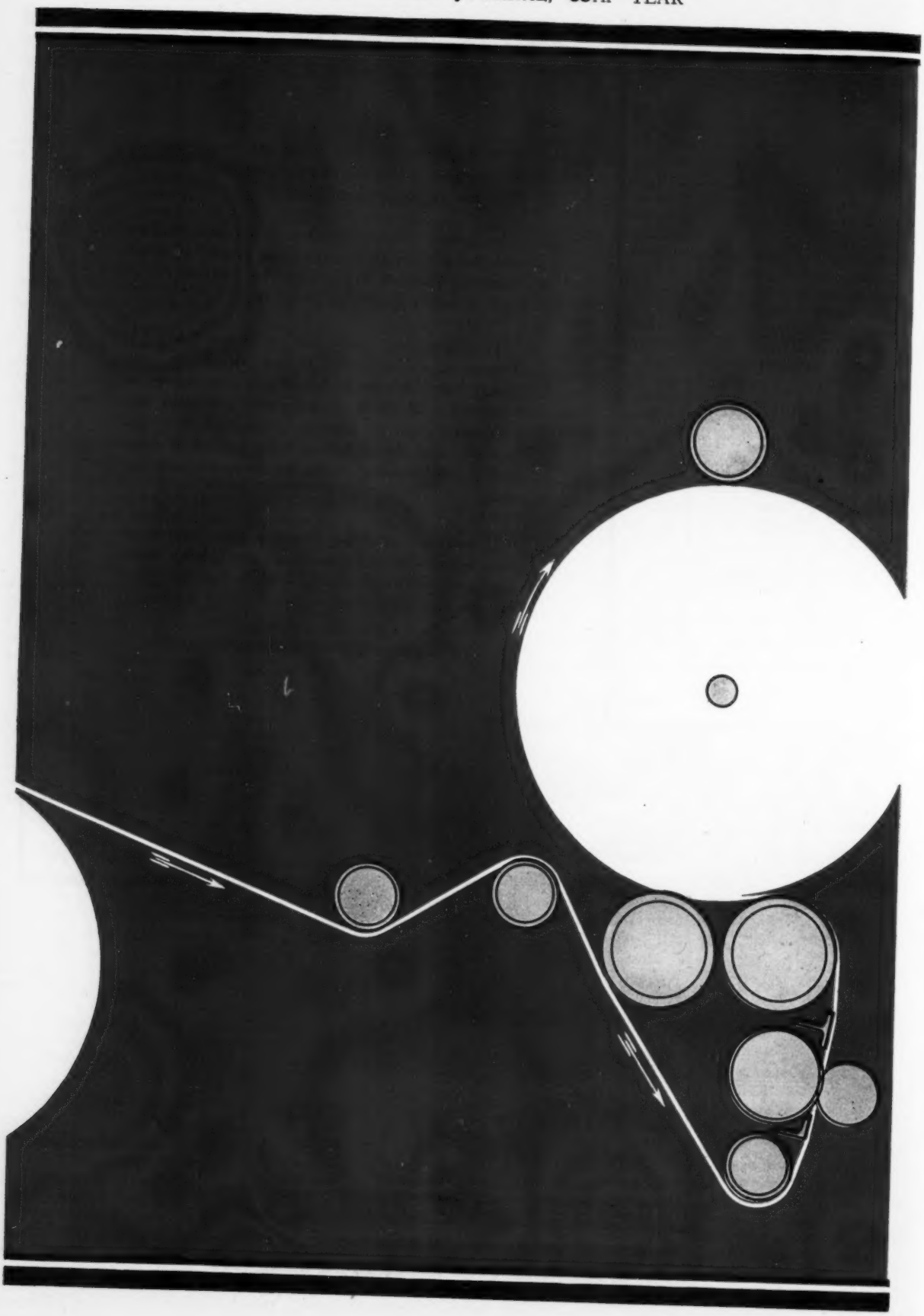
OTHER VALLEY EQUIPMENT

- Jordan Engines
- Beaters, Breakers, Bleachers & Washers
- Flat and Rotary Screens
- Screw Presses
- Voith High Pressure Stock Inlets
- Centrifugal and Stuff Pumps
- Laboratory Equipment
- Stock Valves—Gate and Plug
- Stock Consistency Regulator
- Special Machinery

VALLEY

Equipment for Paper and Pulp Mills

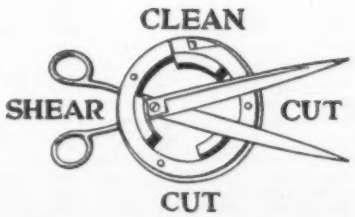
New York Office: 350 Madison Ave.
Western Manufacturing & Sales Division: Smith & Valley Iron Works Co., Portland, Oregon
Canadian Representatives: Pulp & Paper Mill Accessories Ltd., Montreal, Canada.



Efficiency—

OVER eighteen years' satisfactory service, with negligible repair and maintenance costs, is convincing proof of Langston Slitter and Winder efficiency. The Brownville Paper Company, Brownville, N. Y., bought their first Langston Slitter in 1911 for producing adding machine and other small rolls. So efficiently did this Langston perform that a second one was installed in 1915 and a third in 1923. Another type of slitter was tried out at this plant, but failed to produce the clean, even-edged rolls demanded by their customers. All three Langston Slitters have given complete satisfaction on this point—particularly on rolls produced for the U. S. Government, whose requirements for firm, dust-free rolls are unusually rigid. Prospective purchasers of slitting and winding equipment should *get the facts* about Langston's all-around efficiency. We are at your service!

SAMUEL M. LANGSTON COMPANY
Camden, New Jersey



LANGSTON SLITTERS

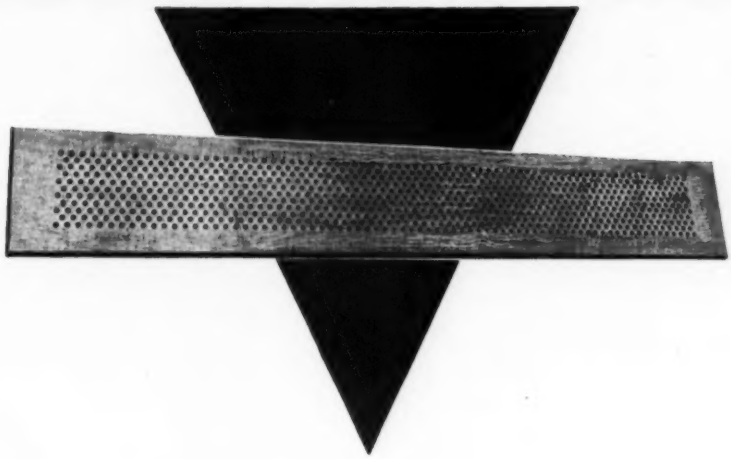
PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending September 30, and for the Nine Months Ending September 30, 1929 as Compared with Corresponding Month of Previous Year

IMPORTS—PAPER

	September				Nine Months Ending September 30			
	1928		1929		1928		1929	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and Manufactures	.....	$11,888,659	.....	$13,352,579	.....	$113,406,667	.....	$118,796,313
Printing paper—								
Standard newsprint ....lbs...free	329,296,257	10,592,927	392,246,360	11,617,098	3,094,724,344	100,813,424	3,496,115,632	104,748,609
Imported from—								
Finland ....lbs.	5,872,254	147,933	3,903,343	94,706	53,680,336	1,400,477	46,882,306	1,129,932
Germany ....lbs.	1,322,787	34,001	1,418,374	34,251	13,191,025	358,318	14,450,381	355,750
Norway ....lbs.	2,716,070	67,535	124,304	2,904	13,788,899	353,020	4,779,798	119,393
Sweden ....lbs.	9,684,351	252,789	5,696,064	145,734	77,338,293	2,064,299	73,047,764	1,860,447
Canada ....lbs.	286,056,342	9,363,014	350,032,454	10,451,864	2,808,300,923	92,538,680	3,160,375,541	95,771,176
Newfoundland and Labrador ....lbs.	23,644,453	727,655	31,071,821	887,639	127,736,366	4,078,591	196,333,094	5,506,676
Other countries ....lbs.	.....	.....	.....	.....	688,502	20,039	246,748	5,295
All other n. e. s. ....lbs...dut.	645,627	31,886	415,681	25,725	5,755,216	269,194	3,238,647	162,226
Grease-proof and water-proof papers ...lbs...dut.	158,327	26,533	142,656	39,242	957,418	176,592	1,302,241	318,947
Kraft wrapping paper ....lbs...dut.	1,310,602	57,893	646,006	25,945	7,154,869	307,252	7,213,725	310,361
Other wrapping paper ....lbs...dut.	1,073,617	30,421	915,424	20,284	12,901,838	301,184	5,703,467	164,838
Writing, letter, drawing, etc., papers ..lbs...dut.	267,785	72,268	293,471	83,921	2,281,025	585,052	2,389,324	631,189
Surface-coated paper ....lbs...dut.	188,210	82,985	187,803	86,928	1,742,808	819,443	1,868,879	798,823
Tissue, copying, etc., papers ....lbs...dut.	432,444	199,146	488,966	239,734	2,494,524	1,464,778	3,627,538	1,910,483
Paper boards, n. e. s.—								
Pulp boards in rolls ....lbs...dut.	3,583,510	73,181	4,672,045	98,863	39,141,492	854,598	44,616,755	968,110
Paper boards, pulp board, and card-board ....lbs...dut.	1,745,139	31,051	1,161,092	26,718	16,571,744	358,460	16,106,036	381,395
Leather board, test, and wall board..lbs...dut.	20,346	681	176,022	7,092	611,286	17,482	1,394,461	55,177
Cigarette paper, cigarette books, and covers ....lbs...dut.	343,129	95,079	1,086,509	417,576	8,359,949	2,264,519	8,961,020	3,024,623
Hanging paper, (wall paper) ....lbs...dut.	117,118	50,894	245,774	79,032	1,573,628	506,720	1,943,282	550,267
Duplex decalcomania paper, not printed..lbs...free	52,657	12,461	64,302	16,031	527,296	118,267	481,970	121,540
Paper boxes ....dut.	.....	138,910	.....	172,964	.....	1,357,940	.....	1,324,309
Pulp or papier-mâché and manufactures, n. e. s. ....dut.	.....	36,241	.....	39,582	.....	328,553	.....	438,991
All other paper and manufactures ....dut.	.....	356,092	.....	355,844	.....	2,863,209	.....	2,886,365
WOOD PULP								
Mechanically ground wood pulp ....tons...free	19,601	477,606	18,452	482,051	159,390	3,891,423	168,779	4,280,855
Sulphite wood pulp ....tons	77,105	4,618,110	78,457	4,623,448	675,201	39,820,675	767,308	45,028,076
Unbleached ....tons..free	51,649	2,650,721	54,941	2,809,851	452,633	22,940,137	518,055	26,118,666
Bleached ....tons..free	25,456	1,967,389	23,516	1,813,597	222,568	16,880,538	249,253	18,909,410
Imported from—								
Finland ....tons	8,270	381,539	6,863	344,189	72,472	3,155,108	83,879	4,066,448
Germany ....tons	4,008	319,451	3,915	279,876	44,929	3,006,232	47,613	3,308,231
Norway ....tons	5,711	388,089	1,491	93,109	46,048	3,109,761	44,280	3,014,219
Sweden ....tons	29,579	1,660,958	31,161	1,756,195	219,833	12,070,497	295,633	16,358,046
Canada ....tons	24,642	1,605,819	32,671	2,031,527	262,426	16,842,967	279,253	17,389,027
Other countries ....tons	4,895	262,254	2,356	118,552	29,493	1,636,110	16,650	892,105
Sulphate wood pulp, unbleached, (kraft pulp) ....tons..free	32,394	1,814,137	41,020	2,142,946	252,756	14,170,595	279,975	15,080,517
Imported from—								
Finland ....tons	244	12,363	4,880	236,903	19,272	852,472	22,618	1,081,542
Norway ....tons	610	30,335	1,299	64,059	9,320	486,792	11,920	628,582
Sweden ....tons	20,936	1,109,889	24,806	1,254,413	119,171	6,269,664	157,525	8,000,375
Canada ....tons	10,604	661,550	9,452	559,832	102,454	6,448,473	83,210	5,152,732
Other countries ....tons	.....	.....	583	27,739	2,539	113,194	4,702	217,286
Sulphate wood pulp, bleached ....tons..free	1,258	93,618	124	11,237	8,702	542,189	11,353	842,233
Other pulp ....tons..free	1,198	69,237	518	41,094	5,207	346,606	6,523	412,917
CRUDE PAPER STOCK								
Rags for paper stock ....lbs...free	40,141,374	728,479	36,024,522	796,583	333,535,259	6,103,262	327,437,788	6,783,667
Waste bagging, waste paper, etc. ....lbs...free	12,908,571	154,272	11,645,601	127,742	114,119,311	1,531,809	110,667,859	1,325,882
Old rope and all other paper stock ....lbs...free	4,341,530	144,525	11,040,582	314,590	45,794,598	1,373,932	88,948,494	2,748,053
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS								
Colors, dyes, stains, color acids, and color bases, n. e. s. ....lbs...dut.	426,099	502,967	646,924	730,178	4,471,006	4,919,714	5,839,453	6,565,920
Imported from—								
Belgium ....lbs.	6,193	10,624	9,399	9,127	94,742	111,478	50,212	60,872
France ....lbs.	6,669	5,220	4,736	4,647	56,980	67,747	102,963	153,254
Germany ....lbs.	251,897	302,438	283,730	272,911	2,890,783	3,024,030	3,765,413	4,095,840
Italy ....lbs.	1,378	1,137	.....	.....	50,369	47,873	8,228	7,074
Switzerland ....lbs.	116,767	142,623	338,232	429,471	1,155,007	1,419,444	1,803,909	2,126,306
United Kingdom ....lbs.	8,829	10,328	7,644	10,638	82,976	77,306	63,610	72,738
Other countries ....lbs.	34,366	30,597	3,183	3,384	140,147	171,836	45,118	49,836
Casein or lactarene ....lbs...dut.	2,177,928	278,295	1,137,284	138,242	23,769,568	3,076,176	21,839,383	2,614,665
Kaolin, china, and paper clay ....tons..dut.	24,124	266,894	26,341	276,128	201,608	2,125,241	205,456	2,222,588

(Continued on page 56)



Wood Suction Box Covers

"M & W" Wood Suction Box Covers are drilled from both sides, making perfectly straight and smooth holes, also making the surface on both sides absolutely smooth, which insures the rubber heads making a good, tight joint, also increasing the life of the wire. They are made on a machine especially designed for making Wood Suction Box Covers in the most satisfactory and economical manner. Only highest grade maple is used and absolutely free of knots, etc. When in the market send sizes required or send for dimension cards for ordering.

M&W

THE MOORE & WHITE CO., NORTH PHILA. STATION PHILADELPHIA, PA.

PAPER · MACHINE · BUILDERS

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 54*)

EXPORTS—PAPER

	September				Nine Months Ending September 30			
	1928		1929		1928		1929	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and Manufactures	.....	$2,098,810	.....	$2,993,176	.....	$22,641,979	.....	$28,125,878
Printing paper—								
Newsprint paper ....lbs.	1,148,295	42,588	2,070,108	83,583	15,934,266	607,708	23,845,745	901,873
Exported to—								
Canada ....lbs.	28,327	1,297	19,219	1,217	163,125	6,136	480,702	22,700
Central America ....lbs.	104,005	3,724	193,253	6,726	836,635	29,488	1,087,987	38,906
Cuba ....lbs.	114,076	3,881	329,405	12,751	3,012,667	110,897	2,499,990	92,782
South America ....lbs.	173,959	7,240	528,084	22,914	3,992,575	150,257	6,674,652	251,040
China, Hong Kong, and Kwantung ...lbs.	.....	.....	211,545	7,000	1,201,475	46,106	3,931,749	133,653
Philippine Islands ....lbs.	542,807	19,572	644,784	22,620	5,815,599	229,968	7,010,157	248,924
Other countries ....lbs.	185,121	6,874	143,818	10,355	912,190	34,856	2,160,508	113,868
Book paper, not coated ....lbs.	1,543,001	108,625	2,486,392	172,652	17,720,666	1,305,547	27,971,607	1,974,202
Exported to—								
Europe ....lbs.	7,424	1,824	89,415	6,828	383,701	40,213	1,392,860	123,703
Canada ....lbs.	434,658	27,678	869,147	49,818	6,844,919	410,621	8,952,509	536,385
Mexico ....lbs.	28,673	2,834	44,670	5,728	352,683	42,139	437,828	45,403
Cuba ....lbs.	202,400	15,221	424,671	29,754	3,481,990	257,421	3,858,410	272,162
Argentina ....lbs.	60,602	4,882	135,559	10,432	507,722	46,937	1,589,215	125,316
Other South America ....lbs.	46,757	4,198	114,326	10,103	866,102	75,183	1,058,491	88,517
China, Hong Kong, and Kwantung ...lbs.	361,405	21,831	258,986	18,028	1,552,870	128,288	5,160,702	313,925
Philippine Islands ....lbs.	252,924	15,739	393,737	26,007	1,793,248	120,128	3,349,415	228,877
Australia ....lbs.	56,620	7,579	61,195	6,804	656,623	78,259	969,736	136,454
Other countries ....lbs.	91,538	6,839	94,686	9,150	1,280,808	106,358	1,202,441	103,460
Cover paper ....lbs.	113,627	22,415	215,788	32,945	1,529,580	256,624	1,557,466	264,942
Grease-proof and water-proof paper ....lbs.	141,706	26,532	286,670	41,841	2,285,101	345,741	2,247,307	404,907
Overissue newspapers ....lbs.	.....	.....	12,196,863	146,533	.....	.....	110,358,802	1,238,127
Wrapping paper ....lbs.	2,428,413	158,636	3,017,972	205,363	26,140,181	1,869,449	31,146,349	2,145,761
Surface-coated paper ....lbs.	1,342,792	108,311	552,215	65,339	7,797,535	820,525	11,731,914	1,097,310
Tissue and crêpe paper ....lbs.	286,983	67,927	502,488	116,530	3,924,620	844,987	3,568,920	804,361
Toilet paper ....lbs.	504,842	45,434	595,161	64,677	4,649,005	497,338	5,298,800	595,826
Paper towels and napkins ....lbs.	273,391	35,646	391,753	47,068	2,252,507	288,461	2,648,742	327,178
Box board ....lbs.	4,561,525	115,702	5,232,680	132,213	37,813,184	1,059,553	42,915,454	1,329,442
Bristols and bristol board ....lbs.	105,716	15,852	225,355	19,328	1,433,944	162,216	2,201,972	215,394
Other paper board and strawboard ....lbs.	3,621,007	146,421	5,794,229	189,596	32,365,280	1,685,866	34,435,582	1,533,820
Sheathing and building paper ....lbs.	1,164,921	39,520	1,539,633	50,167	10,052,203	374,811	17,566,538	589,772
Fiber insulating lath or board ....sq. ft.	.....	.....	3,849,862	126,177	.....	.....	21,359,088	710,806
Wall board of paper or pulp ....sq. ft.	4,984,066	170,002	6,385,386	210,390	40,908,773	1,378,582	51,030,356	1,658,756
Blotting paper ....lbs.	257,963	29,124	249,441	30,168	2,969,648	338,375	2,717,791	323,458
Filing folders, index cards, and other office forms ....lbs.	102,867	33,133	171,996	52,048	1,148,638	383,923	1,224,791	444,725
Papeteries, (fancy writing paper) ....lbs.	64,848	20,291	93,635	22,551	552,280	138,866	560,840	148,790
Other writing paper ....lbs.	1,956,220	200,373	2,669,698	276,599	17,707,709	2,007,436	21,935,798	2,309,701
Paper hangings, (wall paper) ....yds.	2,684,835	37,525	1,122,357	21,100	27,589,381	514,069	21,892,679	472,494
Paper bags ....lbs.	530,779	50,319	1,282,481	91,339	6,378,029	573,548	9,198,141	763,248
Boxes and cartons ....lbs.	2,687,142	169,697	2,062,549	142,745	20,118,106	1,344,929	22,293,632	1,458,887
Envelopes ....lbs.	136,685	22,913	186,208	30,794	1,812,073	295,336	1,814,088	314,030
Vulcanized fiber sheets, strips, rods, and tubes..lbs.	330,121	71,441	449,709	104,375	4,114,344	1,081,538	4,687,720	1,143,274
Manufactures of vulcanized and indurated fiber..lbs.	8,448	6,172	21,323	7,014	403,533	117,968	331,786	82,377
Cash-register and adding-machine paper ....lbs.	381,704	31,237	698,818	57,085	2,474,691	253,569	3,871,409	375,388
Other paper and paper products	.....	322,974	.....	452,956	.....	4,095,014	.....	4,497,029

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	2,105	114,295	1,913	131,924	15,799	886,887	30,967	1,682,363
Soda wood pulp ....tons	326	25,869	272	23,913	1,803	143,187	1,493	122,769
Other wood pulp ....tons	173	14,399	699	39,771	2,492	153,283	5,537	373,361
Rags and other paper stock ....lbs.	18,253,999	299,937	6,004,804	87,212	177,889,159	3,356,370	84,147,054	1,488,604

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery	.....	157,761	.....	394,028	.....	2,244,314	.....	2,941,331

Gift to Lawrence College

APPLETON, Wis., December 2, 1929.—$15,500 as an initial gift for the exclusive purpose of establishing a library with a full time librarian has been given to the Institute of Paper Chemistry at Lawrence College. The gift was announced by President Henry M. Wriston to the college board of trustees convened this afternoon in its semi-annual meeting.

Anonymous donors, friends of the college especially interested in the newly organized graduate school of paper chemistry secured the amount so that the research library could be begun at once. Plans of the Institute set February, 1930 as the beginning of the school's initial term. With the announcement of the gift of $15,500, President Wriston stated that the librarian will be secured immediately and a start will be made toward collection of library materials.

This gift which will be augmented later by additional funds follows in line with the support given the Institute by the paper industries of Wisconsin and makes possible immediate arrangements for the collection of research materials, one of the primary objects of the Institute.

Fox River Valley Mills' Coal Consumption

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—Paper mills and other industries in the Fox River Valley were supplied with 83,000 tons of coal during the past season, according to a summary made when Navigation closed on the Fox River. Two tugs and seven barges were kept in operation for more than six months by the Fox River Navigation Company, a co-operative shipping concern owned by various paper mills. This method of transporting coal has proved cheaper and more efficient than rail shipments, as the barges are loaded at docks at Green Bay, Wis., where coal is brought direct from the mines by Great Lakes vessels.

McNaughton Estate Valued at $208,573

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—The final estate of John McNaughton, former paper mill owner of Kaukauna, Wis., amounts to $208,573.70, according to the final accounting in probate court. The estate is bequeathed entirely to his widow. Mr. McNaughton died last May.

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IT CAN BE DONE

INSTALLATION—140 TONS DAILY CAPACITY

SHREDDED PULP

NEW TYPE SHREDDER INSURING UNIFORM BEATER RESULTS AND SAME AS WET PULP.

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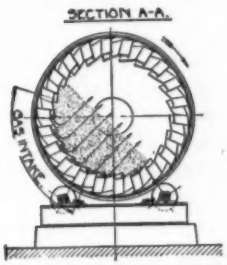
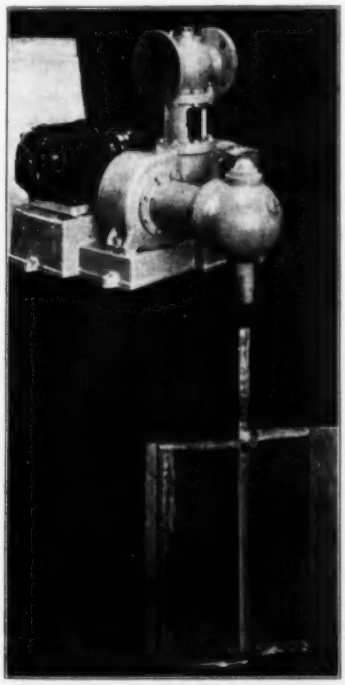


FOR BARK AND CHIPS

STOCK CONSISTENCY REGULATOR



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FOR INSULATING BOARD.

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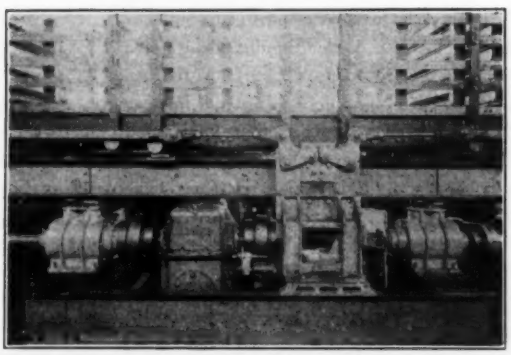

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122 EAST 42nd STREET NEW YORK, N. Y.

PAPER TRADE JOURNAL
ESTABLISHED 1872

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LOCKWOOD'S DIRECTORY OUT

The fifty-fifth annual edition of Lockwood's Directory of the Paper and Allied Trades is just off the press.

Slightly fewer new mills have been listed than in recent years. Expansions and improvements to going plants have, however, been so numerous that it has been necessary to make more changes in the mill section of the directory than in a good many years past. An official report has been received, with but several unimportant exceptions, from every mill in the United States and Canada and it may, therefore, be assumed that all of the mill changes during the past year are completely and accurately entered in the mill section.

The list of idle mills, as has been the trend in recent years, shows another increase this year. No representative mills, however, are included in the list. This, of course, indicates that the pulp and paper industry in both the United States and Canada is on a sound basis and that the marvelous new plants that are constantly being built and the extensive improvements that are increasingly being made to mills already in existence are crowding out the less up to date ones.

The mortality of the pulp mills has again been quite severe. No less than fourteen mills during the past year have gone idle or ceased to exist altogether. This is a larger number than faded from the picture last year, although the loss last year was the greatest in a number of years past. The decrease in the number of pulp mills was made up of about 65 per cent ground wood mills, 20 per cent sulphite mills and 15 per cent soda mills.

An unusually large number of additions and corrections have been made in the various other sections of the directory, including the Classified List of Paper Mill and Pulp Mill Products, Paper Specialties, Coating and Glazing Mills, General Paper Merchants, Rag and Paper Stock Dealers, Rags and Paper Stock consumed by the Mills, Paper Box Manufacturers, Paper Bag Manufacturers, Envelope Manufacturers, Paper and Pulp Mill Chemists, Addresses of Mill and Mill Supply Offices in the Large Cities, Wholesale and Retail Stationers, Watermarks and Brands and Trade Associations.

Owing to the great mass of information presented, numerous abbreviations have, naturally, been used. These are explained at the beginning of each section and should be carefully consulted. A complete index of all the sections is printed in the beginning of the book. By cultivating the use of this the convenience with which all information in the directory may be ascertained will be greatly increased.

The great popularity of Lockwood's Directory and its usefulness to its subscribers is attested by the constantly increasing demand for it. Although the editions are constantly being increased, the directory is usually out of print a considerable time before the next edition is published. This makes it advisable for those who contemplate subscribing to get in their order early, or to run the risk of being disappointed just when the book is perhaps greatly needed for some important purpose.

The cost of the directory is $7.00 cash with order. It may be ordered from the Lockwood Trade Journal Company, 10 East 39th street, New York City.

GET READY FOR THE CENSUS

Seventeen regional conferences are to be sponsored by the Department of Commerce to prepare the way for a great nation wide census of manufacture and distribution. The first of these conferences was held recently at the Hotel Pennsylvania, New York, and was attended by delegates of business houses and trade associations. At this conference a large number of pulp and paper men were in evidence, showing that the industry is interested in the great census program.

During the next three years nearly $40,000,000 will be spent and 100,000 people will be employed to prepare the results of the census for the use of the people of the United States. Whether or not this tabulated information will be of value depends on the care and accuracy with which it is prepared and the use to which it is put. The questions to be asked will be definite, simple, and will deal with information that every manufacturer should have readily available.

The reports will be sent out in January and if the returns are promptly submitted, and are accurate and complete, Secretary of Commerce Lamont promises to have the data compiled and published by October. This speed in preparing the figures was recommended to the Department by its Advisory Committee, made up of business men from various parts of the country.

A distribution census will be taken this year for the first time. "What is being sold, and where?" is a question that every company asks. To consider the feasibility of such a census a number of representative American cities were selected by the Department of Commerce in which to make regional distribution surveys. The success of these experimental ventures show that the great national survey can be successful.

It is unquestionably to the advantage of every paper and pulp company to obtain an accurate picture of distribution. Only by whole-hearted cooperation on the part of every manufacturer can such a picture be painted. A half century or more of government census taking has demonstrated that the government publishes only information of value to all concerned. In no way does it deliberately reveal the information of any single company's activities. Consequently, the data will be treated confidentially and impersonally.

Manufacturing operations conducted without paying attention to economic trends cannot hope to withstand more enlightened com-

petition. The answers to the questions "How is business?" "When is business?" and "Where is business?" can be answered if the following facts are available:

1. Production in all its phases. 2. Capacity of manufacturing plants. 3. Employment in manufacturing plants. 4. Shipments of manufactured products. 5. Consumption of raw materials. 6. Raw materials in stock. 7. Finished products in stock. 8. Orders accepted. 9. Cancellation of orders. 10. Unshipped orders. 11. Inquiries by buyers. 12. Prices for manufactured products. 13. Exports of manufactured products. 14. Imports of manufactured products. 15. General business statistics.

The great value of the aforementioned items to the paper industry should be evident and can be made available if every paper and pulp manufacturer will supply the information as it relates to his company, accurately and without delay. Success of the manufacturing and distribution census appears to be likely and should be of value to every company in the industries.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 2, 1929.—Business in all lines of paper has been fair to excellent, according to statements at a number of wholesale houses. The general tendency of the cold snap has been to stimulate buying. Wrapping paper has been moving in fairly good volume, with a demand brought about by the holiday season, although in some quarters the call was slightly less for the week under review.

The demand for box board is fair, but the market lacks the snap which the trade would like to see. Some have characterized the market as marking time. Box makers are moderately busy. It is reported that their inventories are low, less than those of a year ago. While values of paper stock are easing off, prices of box board remain firm. Rumors are current that box board prices are to be marked up. Such predictions have been made so many times in the trade for a year or so that some are inclined to place little faith in them, like the man from Missouri.

Dullness prevails in the paper stock market, especially in mixed paper. The No. 1 grade has been cut from a range of 42½ cents @ 47½ cents to a flat 40 cents, f.o.b. Boston. Rags are rather slow.

F. L. Carlisle Heads Niagara-Hudson Power

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., November 30, 1929.—Election of Floyd L. Carlisle, president of the St. Regis Paper Company and chairman of the board of directors of the Niagara-Hudson Power Corporation, with several of his associates as directors of the Fulton Light and Power Company is believed to be the forerunner of the sale of the utility firm to the gigantic power chain under the control of the Carlisle and Morgan interests. At the meeting of stockholders held this week a number of new directors were elected including R. P. Stevens, George N. Howard, John Zimmerman, H. M. Whiting, J. F. Schoelkopf, Randall J. La Boeuf, and Floyd L. Carlisle. Mr. Stevens is president of the Niagara-Hudson Power interests while Mr. Howard and Mr. Schoelkopf are also connected with the Carlisle organization.

News Print Price Not Settled

Joseph L. Fearing, vice president and sales manager of International Paper Company, issued the following statement regarding the Canadian paper situation: "Mr. Graustein (president of the paper corporation) authorizes me to state, reports to the contrary notwithstanding, that solution of news print price problem for the next year has not yet been reached. We do not know yet whether or not there will be an increase nor if so what amount."

Canadian Pulp and Paper Exports Gain

According to the report issued by the Canadian Pulp and Paper Association the exports of wood pulp and paper from Canada in October were valued at $17,896,151. This was an increase of $2,311,622 over the previous month but was somewhat below the total for October, 1928.

Wood pulp exports for the month were valued at $3,703,414 and exports of paper at $14,192,737, as compared with $4,232,557 and $14,107,462 respectively in October, 1928.

Exports of the various grades of pulp and paper in October were as follows:

	October, 1929 Tons	October, 1929 $	October, 1928 Tons	October, 1928 $
PULP:				
Mechanical	15,703	452,441	21,136	587,795
Sulphite bleached	20,305	1,564,010	22,869	1,748,017
Sulphite unbleached	19,534	969,904	18,477	921,780
Sulphate	11,712	664,543	15,706	914,877
Screenings	2,982	52,516	2,956	60,087
	70,236	3,703,414	81,144	4,232,557
PAPER:				
News print	232,441	13,604,221	214,228	13,576,872
Wrapping	1,455	161,278	1,368	150,545
Book (cwts.)	7,197	59,664	4,948	39,892
Writing (cwts.)	84	1,862	548	5,292
All other	.....	365,712	.....	.....
	.....	14,192,737	.....	14,107,462

For the first ten months of the current year the total value of pulp and paper exported from Canada amounted to $163,514,218 as compared with $157,889,459 for the corresponding months of 1928, an increase for this year of $5,624,759.

Exports of wood pulp for the ten months were valued at $36,041,663 and exports of paper at $127,472,555 as compared with $37,655,890 and 120,233,569 respectively in the ten months 1928.

Details of exports for the ten months of 1929 and 1928 are as follows:

	Ten months, 1929 Tons	Ten months, 1929 $	Ten months, 1928 Tons	Ten months, 1928 $
PULP:				
Mechanical	168,085	4,652,929	158,372	4,318,550
Sulphite bleached	212,743	16,145,018	211,069	15,990,237
Sulphite unbleached	162,755	8,040,464	176,097	8,845,695
Sulphate	113,446	6,663,065	135,284	7,981,777
Screenings	30,250	540,187	25,820	519,631
	687,279	36,041,663	706,642	37,655,890
PAPER:				
News print	2,061,321	122,368,162	1,797,238	115,272,255
Wrapping	12,576	1,369,898	13,256	1,452,681
Book (cwts.)	63,172	538,015	55,369	458,644
Writing (cwts.)	3,934	36,872	4,017	37,377
All other	.....	3,159,608	.....	3,012,612
	.....	127,472,555	.....	120,233,569

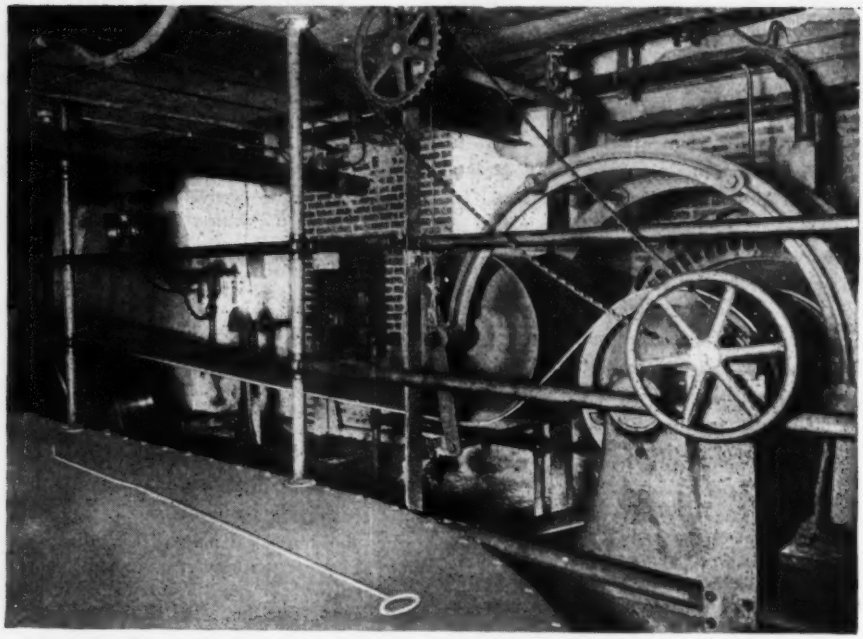
Exports of pulpwood have been smaller this year, the quantity shipped in the first ten months being 1,174,975 cords valued at $12,030,452 as compared with 1,406,731 cords valued at $14,047,232 exported in the corresponding months of 1928.

Hercules Powder Declares Extra Dividend

WILMINGTON, Del., November 27, 1929.—In addition to the regular dividend of $.75 a share, an extra dividend of $1.00 per share on the common stock of the Hercules Powder Company was declared today by the directors of the company. The dividend and extra are payable December 24 to stockholders of record December 13.

For the nine months ending September 30, Hercules Powder Company net profits represent $4.41 per share on 598,000 no-par common shares, a 15 per cent gain over the corresponding nine months period last year. Steady increase during 1929 in net profit per share is indicated by the $1.24 first quarter equivalent, $1.50 second quarter, and $1.67 third quarter. It is estimated the 1929 net profits will show a substantial gain over the $4,038,980 earned last year, when total dividends of 14 per cent were paid on the common stock.

Hercules is one of the country's large producers of basic raw materials supplying an industrial market with purified cotton linters, nitrocellulose, turpentine, rosin, pine oil, acids, explosives, and smokeless powder. Approximately 10 per cent of the company's business is export trade.



Shartle Breaker Beater (72" x 7") at the Manayunk, Pa., plant of the Container Corporation of America. Pulleys 24" and 32" in diameter; Motor 250 H. P., Belt Speed 2100 F. P. M., Output 80 tons per 24 hours. This 24" 9-ply Highflex belt has been in service on this drive four years.

Highflex belting functions better on troublesome paper mill drives

HIGHFLEX is a good belt for every drive in a paper mill. It is equal to the heaviest back-breaking drives and does equally well on the small pulley high-speed drive. One brand of belting in stock, equal to every emergency, simplifies the inventory and insures against misapplication. Highflex is the one brand of belt on the market that is recommended for 95% of transmission drives.

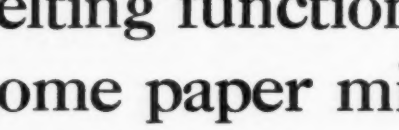
Highflex belts have a higher power capacity, and last longer. Highflex belting, now running on thousands of paper mill drives, is breaking all records for length of service before shortening becomes necessary.

The Highflex belt is a particularly satisfactory solution for the troublesome beater drive because of its non-stretching carcass, superior pulley contact, firm grip on fasteners. It performs the job with a wide margin of safety and insures against costly shut-downs.

Highflex is also an outstanding success on sectional cone drives, where its resistance to stretch is appreciated by superintendents who want to guard against shut-downs. The square edges of Highflex belting, because foldless, present a better wearing surface against shifters.

Endless Highflex belts, built to order at the factory, eliminate all fastener trouble and prolong service 200% to 500%.

We will gladly send catalogue 2105 on Highflex belting. Write to The B. F. Goodrich Rubber Co., Est. 1870, Akron, O. (in the West, Pacific Goodrich Rubber Co., Los Angeles, Cal.), or fill in the coupon below.



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Vulcalock couch, worm, and press rolls —Highflex belting—Rubber-lined pipe and fittings—Fire, water, air, and steam hose—Cutless rubber bearings, rubber-lined tanks, screen diaphragms, gaskets, packing — Flexite buckets and dippers.

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AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Water Supplies For Pulp and Paper Mills*

By Kenneth Shibley[1]

The mill water supply is a matter of prime importance. It should be abundant, soft, free from suspended matter and low in color and iron or other dissolved salts that might in any way interfere with the manufacturing processes involved.

Hard water, seldom found on the West Coast is objectionable on two general grounds. First, it should not be used in the boilers and second, it is unsuitable for use in the actual manufacture of pulp and paper. If hard water is used in the beaters, an excessive amount of alum must be added to overcome the hardness because no size will be precipitated by the alum until all hardness is removed from the water. Variation in hardness from day to day imparts an uncertainty to the whole sizing operation. Hard water is not desirable for washing any kind of pulp either after manufacture or after bleaching.

Hardness in boiler feed water is the direct cause of scale, leaky flues, and either of the other troubles incident to large scale steam production. It reduces boiler life and efficiency, increases repair expense, causes frequent shut-downs and sometimes fuel wastage. If a boiler water supply is hard, it should be treated outside the boiler and not in it. Never make a sewer of your boiler. Softening reactions brought about in the boiler by using certain compounds under the high temperatures encountered may be dangerous and costly. Boiler feed water treatments should be placed in the hands of an expert and not left to chance. Most of our surface water supplies here need little or no treatment and it is the speaker's opinion that many boiler plants using certain types of treatment would be better off without it.

Fortunately, for the pulp and paper maker of the Pacific Northwest, nearly all the water supplies used are relatively soft, free from iron and low in sewage pollution. With perhaps one or two exceptions, all mills derive their supplies from either rivers or lakes. Both lake and river water may carry some dissolved color, considerable vegetable matter, and at times a heavy load of mud or blacial silt. Generally speaking, supplies are available in sufficient quantities from normal storage or stream flow but in one or two cases at least along the short rivers of the coastal plain adequate storage is provided against the period of light rainfall during July, August and September.

Water Quantities Needed

The quantity of water required will vary greatly with the kind of pulp or paper being made. Likewise with the extent to which process or white water may be returned to the circuit. Undoubtedly the use of white water for showers and other purposes can be considerably extended over what is now the practice in many mills. Adequate white water tankage at strategic points in the circuit are most valuable and cut down appreciably the amount of fresh make-up water that is required.

In cases where water supplies are limited, the refiltration of process water is being given consideration in the design of new filter plants. Such water, if properly coagulated, settled and filtered, is often as good as the original supply.

The approximate quantities of water required per ton of wood pulp produced are as follows:

Ground wood	35,000 to 50,000 gallons
Unbleached sulphite	70,000 to 110,000 gallons
Bleached sulphite	110,000 to 150,000 gallons
Soda	100,000 to 140,000 gallons
Kraft	60,000 to 110,000 gallons

The lower figures represent minimum amounts while the upper ones maximum amounts necessary. Wood preparation, liquor making, fiber preparation, bleaching, machine operations, fresh water showers, steam and power, and miscellaneous uses are included in the above.

The average water requirement for conversion from pulp to paper is about 20,000 to 25,000 gallons per ton.

Generally speaking, the water supply for a mill is underestimated rather than overestimated. The speaker has yet to see the mill which has a water supply too large for its needs. This may be due to a too conservative estimate of requirement for normal rated mill capacity or to an increase in output over rated capacity. If a mill rated at 100 tons per day capacity has a water supply of say 10 million gallons and it is found possible to boost the mill output to 140 or 145 tons, the water consumption is increased proportionately. In those mills where water filters are necessary to properly condition the water for use, their capacity is frequently barely adequate for the amount of water required for the original rated tonnage output. With increased production, water use almost invariably increases thereby overloading the filters and when filters are operated at high rates, in many cases 200 per cent, poor water and damage to the beds usually results.

Benefits of Water Filtration

Filtration is the most common method used in the treatment of water. It will remove suspended matter and color due to iron or organic matter. Practically every mill should filter its water supply. Adequate filtration has a very definite value in dollars and cents. If a water supply is clear and colorless and

* Presented at fall meeting Pacific Coast Section of TAPPI, Tacoma, Wash., Oct. 5, 1929.
[1] Manager, California Filter Co., Seattle, Wash.

other things being equal, the pulp produced will be of better color, greater strength, and higher value than if the water were full of mud, color or vegetable matter. Filtration will save machine wires by keeping out foreign matter that may cause them to break due to stoppage and lumpy formation in the wire. It will prolong the life of felts by keeping out the tiny sharp particles of sand that tend to abrade and break down the wool fibers of the felt causing tears and breaks. But the greatest value of all is the effect on the pulp itself, particularly bleached sulphite. The very nature of the wood fibers in the pulp are such that they absorb color and suspended matter from the water. They form a perfect filter mat and if the water used in washing contains undesirable elements, these are almost sure to remain in the pulp thereby causing specks.

Filtered water is uniform in character and pulp made with it is usually of uniform color. No matter what may be the tint desired, it should be uniform throughout. This is particularly true on papers for coloring or coating.

Strength is vitally affected by muddy water, the mud acting as a filler. A case in point may be mentioned. Lightweight unbleached kraft showed a loss of almost 50 per cent in strength due to muddy water alone. In this case, the color produced by the mud was not objectionable but the loss in strength was serious. A settled filtered water supply would have prevented this.

Some waters contain molds and bacteria which are one of the causes of slime troubles. Adequate filtration of the water supply will go a long way in correcting this.

Generally speaking, the filter plant should be constructed as a unit apart from the rest of the mill. To do so, usually results in lower construction costs, and in a design better suited to the needs of the problem at hand. If filtration is necessary at all, full provision should be made for proper dosage of the raw water, thorough mixing, ample coagulation, adequate settling and properly controlled rates of filtration through carefully designed sand beds of correct depth and composition. It may be possible that for a considerable portion of the year, full chemical treatment of the water may not be required, but when bad water does appear, all plant facilities necessary are at hand and instead of having to battle bad water, the mill operation continues with a good clean supply of first class quality. Any attempt to eliminate or curtail any of these necessary elements of a filter plant usually results in trouble. The process of water filtration includes all these elements mentioned. Anything short of this results in a mere mechanical straining of the water, which except in rather rare cases is unsatisfactory.

Filtration Factors

Since no two water supplies are alike, it follows that their methods of treatment are not identical. Many supplies are, however, so closely similar that in general the process of treatment may be said to be the same. Nor does it follow, that one type of treatment is adequate for similar supplies. Each should be carefully investigated as to its turbidity, color and pH value throughout a full years' cycle if possible. Chemical equipment should be provided to meet the changing conditions, settling basins should be ample for peak demands during bad water periods, filter beds should be of sufficient area to assure reasonable rates of filtration even under peak demands. Ample storage of filtered water should be provided between the filters and the mill supply pumps. The practice of storing wash water in an elevated tank adjacent to the filters rather than to pump it directly from the clear well is decidedly advantageous. Filter operators should be intelligent men, carefully instructed in their duties and cognizant of the importance of the work over which they have charge. These are but a few of the considerations that should govern the design and operation of the well conceived filter plant.

The cost of producing clear filtered water is surprisingly small. First cost of filters will range from about 3000 to 8000 dollars per million gallons capacity, depending on type and conditions of installation. The cost of producing filtered water exclusive of power for pumping will rarely exceed on the average two dollars per million gallons. For bleached sulphite pulp where the use is say 125,000 gallons per ton the water purification cost per ton is not over 25 cents, surely a small item of whole total.

It has often seemed that the quality of the mill water supply furnished has been a matter of secondary importance. Perhaps this was not intentionally so but judging from the number of what might be termed "fair weather" water supplies, it seems to be a fact. As long as things run along fairly well, the question of the condition or quality is not a live one. But let the water supply run low, get muddy, or full of algae or moss, or otherwise be troublesome, then the subject is of immediate interest to everyone concerned. While it is true that the pulp and paper industry is primarily engaged in that business and not in the water business, yet the extent which a proper water affects the success of a venture impels belief that a more comprehensive consideration of this phase of the problem would be advantageous. These are not intended as words of criticism but to indicate one of the many considerations that face the mill owner and operator, for unlike many of the problems of process manufacture, the water problem which is properly evaluated and solved at the beginning is permanently solved.

TAPPI Notes

G. F. Kennedy, of the Naval Stores Department of the Hercules Powder Company, has been transferred to the Experimental Station of the same company at Kenvil, N. J.

Karl J. Bergström, of the Svenska Flaktjabriken A/B, of Stockholm, Sweden, was a visitor this week at the office of the Technical Association.

Everett Uebrick, formerly with the Dells Pulp and Paper Company, of Eau Clair, Wis., is now at the Port Alfred Pulp and Paper Company, Port Alfred, P. Q.

J. E. Patterson, manager of operations of the Abitibi Power and Paper Company, has moved from Iroquois Falls, Ont., to Toronto.

Jacob Dahl, chemist at the Hawkesbury, Ont., mill of the International Paper Company, has recently joined the staff of the Forest Products Laboratory, Madison, Wis.

George D. Bearce, of the Manufacturing Department of the International Paper Company, is now located in Dalhousie, N. B., as manager of the New Brunswick International Paper Company.

W. G. Mac Naughton has left the News Print Service Bureau and is now in the manufacturing department of the International Paper Company, 100 East 42 street, New York.

John D. Pere, formerly director of research for the Champion Fibre Company, Canton, N. C., is now engineer for the News Print Service Bureau, New York.

G. H. Hedley, managing director of St. Annes' Board Mills, of Bristol, England, was a visitor at the TAPPI office this week.

William G. Fiske, director of Thames Board Mills, Ltd., of Puflect, Essex, England, was a visitor at the office of the Technical Association this week.

Harry D. Crandon, who has been with the Munising Paper Company, Munising, Mich., is now with the Du Pont Viscoloid Company at Arlington, N. J.

R. H. Dines, formerly with the National Aluminate Corporation of Chicago, is now with the Fibre Division of the United States Rubber Company, Rock City Falls, N. Y.

Riverside Paper Mill Damaged by Fire

APPLETON, Wis., December 2, 1929.—Damage amounting to about $300 was caused by a small fire last week at the Riverside Paper Company, Appleton, Wis. The blaze started in the sawdust and chip conveyor but was extinguished before much damage was done.

Consistency and Temperature Characteristics of the Precision Freeness Tester

By E. A. Worm[1] and D. S. Davis[2]

As mentioned in the first paper [3] of this series, one of the highly important properties of paper making stock is its freshness or rate at which water drains from the fiber. The apparatus for the measurement of the rate of drainage are variously designated as freeness, slowness and sedimentation testers. The Schopper-Rieger, [4, 5] Green, [6] Canadian Standard, [7] and William (50—50); [8] 1925, Model B; [8, 9] and 1927, Model B, [10, 11] testers all separate the rapidly draining water from the slowly draining water, and the amount of fast draining water is considered a measure of the freeness of the stock, large volumes indicating free stocks and small volumes indicating slow stocks. In the case of sedimentation testers, of which the Precision tester here described is a form, the measure of freeness is the time required for a definite volume of water to drain through the fiber mat which is being formed upon a wire. Numerically large values indicate slow stocks and small values indicate free stocks.

Operation of Tester

Using the Precision freeness tester previously described, [12] a freeness test may be conducted as follows: A quantity of stock equivalent to 3 grams of bone dry fiber is poured into the glass cylinder, A, Fig. 2, (already filled to the zero mark with water) and diluted to the 1000 ml. mark with water at the proper temperature to result in a final temperature of 25 deg. C. for the whole. The contents are gently stirred with a thermometer, which

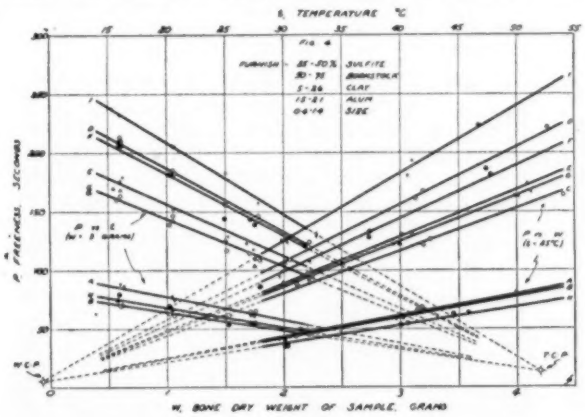

FIG. 1

is fitted with a cork hilt to prevent contact of bulb and cylinder, taking care not to leave the suspension swirling. The flow of water is started by shifting the valve handle, B, from left to right, a rubber covered wheel on the handle bearing down upon the stem and starting the stop watch, C, at exactly the same time. Sedimentation of fibers occurs upon a perforated plate slightly above the valve and when the level of liquid has fallen from the 1000 ml. mark to the zero mark, the valve is closed, stopping the flow and watch simultaneously. The time in seconds is recorded as the freeness of the stock at the standard conditions, 3 grams and 25 deg. C. The upper valve is again opened and the lower valve handle, D, is turned until the arrow points to the left, connecting the tester with an aspirator and forming a compact fiber mat upon the perforated plate. Both valves are closed, the cylinder is removed and the fiber mat is washed from the removable perforated plate, completing the test.

Theory

In the case of the Model B. testers [8, 9, 10, 11] it has been shown that the reciprocal of the freeness value is a linear function of the consistency, as expressed in the following equation:

$$\frac{H}{F} = KC + A$$

where F is the freeness value, C is the percentage bone-dry consistency and H and A are constants. As mentioned above, the Model B tester measures the volume of rapid drainage water while the Precision tester measures the time required for a liter of water to drain from the fibers, hence the latter freeness value, P, might be expected to be a linear function of the Model B freeness *reciprocal*, as

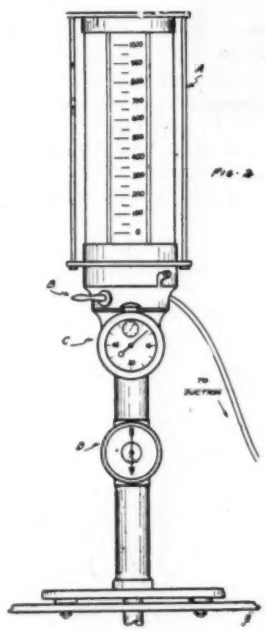

FIG. 2

$$P = \frac{B}{F} + D \qquad \text{(Eq. 1)}$$

where B and D are new constants. Percentage consistency is proportional to the bone dry sample weight, w, and B and H are related by a proportionality constant, k_1, hence we may write

$B = k_1 H$ and $C = k_1 w$

Substituting in Eq. 1:

$$P = \frac{k_1 H}{F} + D = k_1(KC + A) + D = k_1 K k_1 w + k_1 A + D$$

Letting $m = k_1 K k_1$ and $a = k_1 A + D$, $P = mw + a$,

which states that the freeness value is a linear function of the bone dry weight of sample.

TABLE I
WATER CALIBRATION

Temperature, deg. C...	16	21	24	25	26	26	26	27	32	
Freeness of water.....	4.8	4.6	4.4	4.6	4.6	4.6	4.6	4.8	4.6	4.6(Ave.)

Table I shows the freeness of stock at zero consistency, or water, to be 4.6 seconds and to be independent of temperature over

[1] Junior member TAPPI, Bureau of Tests, International Paper Co., Glens Falls, N. Y.
[2] Junior member TAPPI, chief chemist, Philadelphia Div. Container Corporation of America, Manayunk, Pa.

a reasonable operating range. Substituting the water calibration data in the above general equation,

$$4.6 = m(0) + a$$

it is possible to evaluate 'a' as 4.6 seconds and the general equation becomes

$$P = mw + 4.6$$

Effect of Sample Weight

The procedure followed in the case of sulfite will serve to illustrate the methods employed in verifying the theory. Two kilograms of unbleached sulphite were beaten at a consistency of 1.8 per cent in a 2.5—kilogram experimental beater, ten samples were removed at various intervals and each was diluted to a consistency of about 0.5 per cent. Three smaller samples were prepared from he diluted stock containing approximately 2, 3, and 4 grams of bone dry stock respectively. Freeness tests were made at 25. ± 0.2 deg. C. and at the completion oi each test the fiber mat was pressed between blotters and dried to constant weight in an oven maintained at 105 deg. C.

The lines running upward to the right in Fig. 1 show the effect of sample weight upon freeness, the lowest line representing very free sulphite and the highest line representing well-beaten sulphite. It will be seen that whether the stock be free or slow, freeness is linear with respect to sample weight and that the lines meet in a common point, the weight convergence point, W. C. P. Since but one point in addition to the W. C. P. is required to determine such a line, this convergence point is of considerable importance and must be accurately located. The following method for lo-

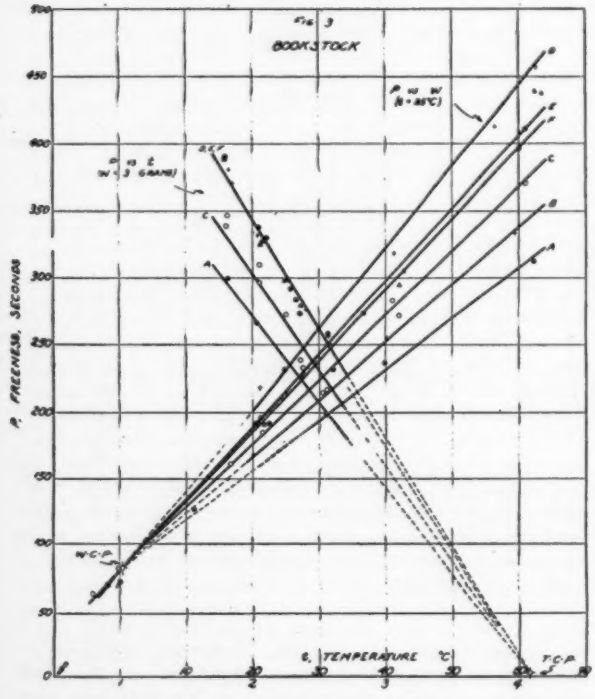

Fig. 3

cating the W. C. P. was used: Substitution of the data presented in Fig. 1 in the general equation,

$$P = mw + a$$

yielded ten equations, and these, solved simultaneously, two at a time, yielded forty-five pairs of co-ordinates for the W. C. P., which, upon averaging, gave the best values for the co-ordinates of this point. Each equation was then re-written, imposing the condition that each line pass through the best W. C. P. The preliminary and final values of 'm' and 'a' are given in Table II and the averaged co-ordinates of the interesection points are listed in Table III.

Effect of Temperature

In studying the effect of temperature, which effect is, of course, largely a viscosity phenomenon, four samples containing just 3 grams of bone dry fiber were prepared from each of the ten 0.5 per cent samples and freeness determinations were made at approximately 15, 20, 27, and 32 deg. C. In Fig. 1, the lines running downward to the right show the effect of temperature upon the freeness of sulphite stock, the lowest line representing very free sulphite and the highest line very slow sulphite. It will be seen that whether the stock be free or slow, freeness is linear with respect to temperature over the range studied, and that the

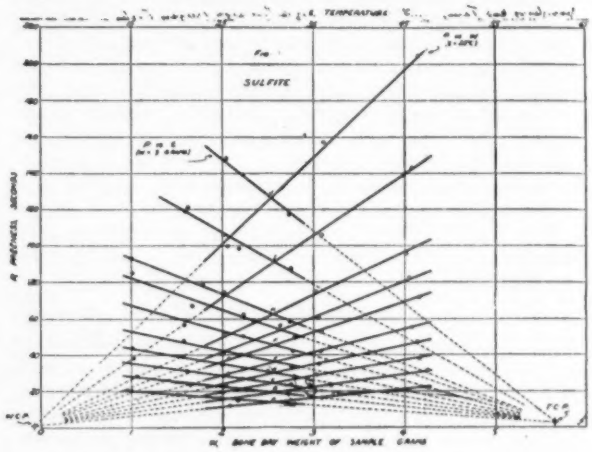

Fig. 4

lines, when projected, meet in a common point, the temperature convergence point, T. C. P.

The equation of each line is of the form,

$$P = nt + b$$

where 't' is the temperature in degrees centigrade, and 'n' and 'b' are constants. The manner of the determination of the co-ordinates of the T. C. P. was exactly analagous to the method adopted for the location of the W. C. P. Preliminary and final values of 'n' and 'b' and the averaged coordinates of the intersection points are given in Tables II and III, respectively. The

TABLE II
VALUES OF CONSTANTS

Sulphite	Preliminary				Final			
	m	n	a	b	m	n	a	b
A	4.40	—0.406	—3.1	26.2	4.83	—0.363	2.0	25.2
B	7.55	—0.532	—0.9	35.6	6.83	—0.532	1.8	35.6
C	8.38	—0.674	3.1	45.1	8.78	—0.695	1.9	45.7
D	11.50	—0.897	0.0	57.3	10.83	—0.876	2.1	56.8
E	13.10	—1.167	2.2	71.6	13.10	—1.078	2.2	69.2
F	16.76	—1.393	2.3	88.3	16.70	—1.386	2.4	88.1
G	20.64	—1.686	—1.0	107.1	19.40	—1.700	2.6	107.4
H	20.80	—1.978	11.8	122.8	23.40	—1.934	2.9	121.9
I	34.60	—2.72	1.8	175.2	34.00	—2.86	3.6	179
J	48.70	—4.42	2.5	260.1	48.00	—3.97	4.5	247
Bookstock								
A	71.3	.....	20.0	...	75.8	—6.46	5.4	400
B	83.4	.....	3.0	...	85.8	.....	—4.7	....
C	93.7	.....	—9.7	...	95.7	—7.22	—14.8	447
D	114.6	.....	—19.9	...	121.1	—8.18	—40.8	506
E	11.8	.....	—36.5	...	108.4	—8.20	—27.8	507
F	108.0	.....	—31.6	...	105.4	—8.20	—24.7	508
Bookstock—Sulphite Mixtures								
A	22.5	—2.37	—4.3	125	18.28	—1.98	6.6	116
B	20.1	—1.64	—0.5	99	17.72	—1.57	6.5	95
C	32.3	—4.03	19.8	223	36.20	—4.05	7.9	224
D	50.0	—5.57	6.1	299	49.00	—5.41	8.8	295
E	38.3	—4.73	13.5	252	40.10	—4.45	8.1	245
F	48.6	—5.32	—1.5	288	45.10	—5.25	8.5	286
G	36.9	—5.03	14.0	248	38.90	—4.07	8.0	225
H	18.9	—1.69	—3.4	101	15.47	—1.69	6.4	101
I	56.2	—6.43	14.2	338	57.80	—6.06	9.4	329
Ground Wood								
A	252.5	—13.61	—51.5	1082	249.4	—18.17	—43.5	1192
B	177.0	—10.93	—43.3	778	176.7	— 9.33	—42.5	740
C	194.9	—12.07	—38.0	837	191.6	—10.48	—42.7	799
D	464.2	—54.95	—48.3	3079	463.4	—55.09	—46.6	3083

TABLE III
CO-ORDINATES OF CONVERGENCE POINTS

Stock	Weight convergence point P	w	Temperature convergence point P	t
Sulphite	1.3	—0.066	2.9	61.5
Bookstock	82.6	1.018	2.9	61.5
Bookstock—Sulphite mixtures	5.3	—0.071	13.3	52.0
Ground wood	—39.9	0.015	262	51.2

TABLE IV
ERRORS ARISING THROUGH USE OF THEORETICAL W. C. P.
(1) Corrected by use of the theoretical W. C. P.
(2) Corrected by use of the actual W. C. P.

Sample weight, grams	Freeness Stock J (1)	(2)	Per cent Error	Freeness Stock A (1)	(2)	Per cent Error
			SULPHITE			
2.0	148.5	148.5	0.0	15.2	16.5	—7.9
2.5	148.5	148.5	0.0	16.0	16.5	—3.0
3.0	148.5	148.5	0.0	16.5	16.5	0.0
3.5	148.5	148.5	0.0	16.9	16.5	2.4
4.0	148.5	148.5	0.0	17.1	16.5	3.6
			BOOKSTOCK			
	Stock D			Stock A		
2.0	299.8	322.5	—7.0	233.2	232.8	0.2
2.5	313.5	322.5	—2.8	233.0	232.8	0.1
3.0	322.5	322.5	0.0	232.8	232.8	0.0
3.5	329.0	322.5	2.0	232.7	232.8	0.0
4.0	333.8	322.5	3.5	232.6	232.8	—0.1
			BOOKSTOCK—SULPHITE MIXTURES			
	Stock I			Stock H		
2.0	185.2	182.8	1.3	53.7	52.8	1.7
2.5	183.8	182.8	0.5	53.2	52.8	0.7
3.0	182.8	182.8	0.0	52.8	52.8	0.0
3.5	182.1	182.8	—0.4	52.6	52.8	—0.5
4.0	181.6	182.8	—0.7	52.4	52.8	—0.9
	Stock D			Stockk B		
2.0	1318	1344	—1.9	464.1	487.6	—4.8
2.5	1333	1344	—0.8	478.2	487.6	—1.9
3.0	1344	1344	0.0	487.6	487.6	0.0
3.5	1351	1344	0.5	494.4	487.6	1.4
4.0	1356	1344	0.9	499.4	487.6	2.4

whole matter of convergence finds an analogy in the Cox method

Take in Table III

[13], [14], [15] for plotting vapor pressure—temperature data.

Similar methods were employed in the determination of the weight and temperature convergence points for bookstock, bookstock-sulphite mixtures and for groundwood. Data for these

Take in Fig. 3—5

stocks are given in Figs. 3 to 5 inclusive and in Tables II and III.

Conversion Chart

Fig. 6 is a chart for converting freeness values obtained at any sample weight and temperature within the ranges covered to the corresponding freeness values at the standard weight and temperature, 3 grams and 25 deg. C. respectively. For laboratory and mill use this chart consists of a varnished sheet of plotting paper,

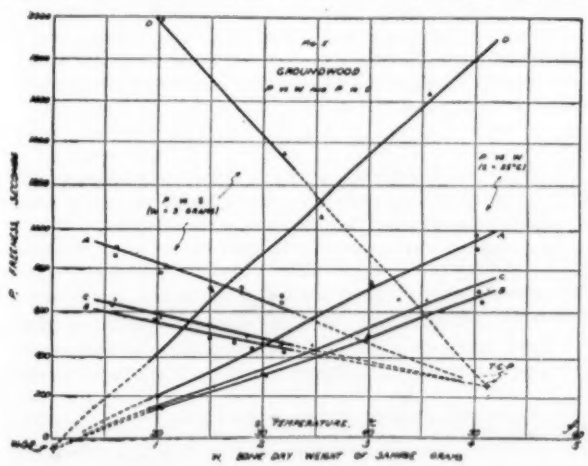

FIG. 5

80 x 100 cm. carrying three marginal scales, mounted on heavy fiber board backed with a light wood frame. The various weight and temperature convergence points are marked with glass-headed tacks and a 2.5 meter heavy, black tread with loops at each end is used instead of a straight edge. The use of this chart is illustrated as follows: Given the freeness of a sulphite stock as 190 seconds at a sample weight of 4 grams and a temperature of 18 deg. C., find the freeness under standard conditions. Stretch the thread from the sulphite weight congergence point, S. W. C. P., to the point (4, 190) and mark the intersection with the 3 gram line. Follow the guide lines paralled to the weight axis to the 18 deg. C. line and stretch the thread from this point to the sulphite temperature convergence point, S. T. C. P. The thread will cross the 25 deg. C. line at the desired value, 121 seconds.

In the case of freeness tests made at sample weights close to the standard value, 3 grams bone-dry, the water calibration value (w=O, P=4.6) which is also the theoretical W. C. P. for all stocks, may be used in place of the true W. C. P. with little sacrifice of accuracy. Table IV shows a comparison of freeness values corrected to the standard sample weight by use of the

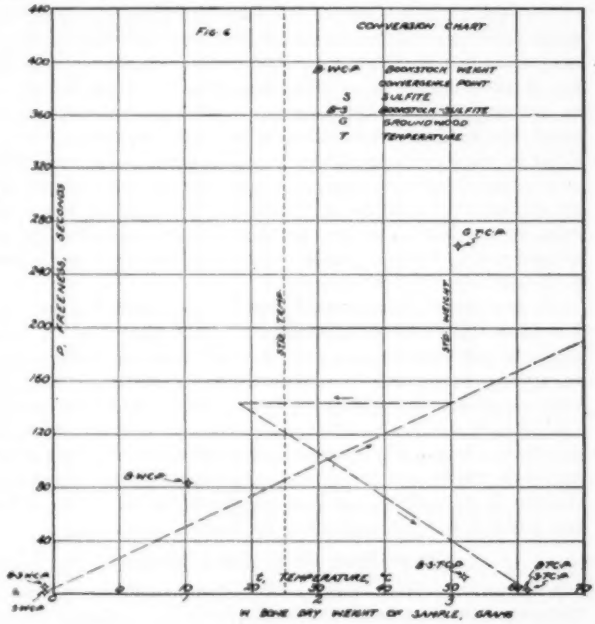

FIG. 6

theoretical and actual weight conversion points and the percentage error involved.

Summary

Data are presented to show that, in the case of the Precision freeneses tester operating on sulphite, groundwood, bookstock and mixtures of bookstock and sulphite, freeness is a linear function of both sample weight and temperature. At constant temperature, variously hydrated stocks of a given type exhibit convergent freeness—weight curves, and at constant sample weight there exists, for each type of stock, a convergence point for freeness—temperature curves. The co-ordinates of both weight and temperature convergence points for these stocks are given.

A chart for the purpose of converting freeness values obtained over wide ranges of sample weight and temperature to standard conditions is included and a table is given showing the error to be expected in using the theoretical in place of the actual weight convergence points in such a chart.

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Forests for Cellulose

By A. W. Schorger[1]

The mortuary tables show that prophets are an especially poor risk. The fulfillment of a prediction made today for the industry of the next decade may be considered largely fortuitous. With respect to various raw materials, however, such as steel and oil, we can see no immediate substitute. Among these basic materials it is safe to place cellulose. We do not know its constitution or precisely how it is synthesized in the plant, but we are fully aware of the fact that it is a flexible substance indispensible to modern culture.

The bulk of this cellulose will come from wood. There are many substitutes for wood as such but none for cellulose, so we can predict that in the future a forest will be considered as yielding so many pounds of cellulose rather than so many board feet of lumber. Steel, concrete, gypsum, and various forms of wall board are making serious inroads on lumber because they are either as good or better for structural purposes. As the density of population increases, more and more lumber will be ruled out on account of its combustibility alone. We shall by no means cease to use lumber in the aggregate in large quantity, but the amount will be relatively small and confined largely to farm purposes and temporary structures.

We hear much of "synthetic lumber." This product is the most hopeful avenue for the utilization of large quantities of farm products and forest waste. Wood unsuited to the manufacture of pulp or lumber can be converted into boards which in many respects are superior to lumber. It is free from knots and checks, can be made lighter or denser than wood, and of any reasonable dimension. Panels of Masonite, e.g., made from wood waste are highly decorative and resemble closely natural wood. More merchandise is shipped today in fiber containers than in wooden boxes and this field has not approached the limit of exploitation.

Water Proof Wall Board Needed

A serious defect of synthetic lumber, particularly the dense kinds, is its deformation with changes in the humidity of the atmosphere. A cheap, effective method of water-proofing cellulose or lignocellulose would be a boon to industry. One of the most prominent properties of cellulose is its affinity for water so that in most water-proof products the water-proofing agent forms a large proportion of the total.

The debt of civilization to wood is great. It is a striking fact that treeless regions have shown the lowest types of culture. The smelting of metals required charcoal and commerce wooden ships. Printing had to await a suitable medium; there are many reasons for believing that the mechanics of this art were known many years before the date accepted for its discovery, but they could not be exercised before paper became available. Parchment and papyrus were too expensive and lacked the proper qualities for printing. Even today books and newspapers would be exceedingly expensive were it not for the comparatively recent discovery that suitable cellulose fibers could be isolated from wood by chemical methods.

Corn Stalks, Bagasse and Straw

Cellulose is by far the most abundant organic material above the earth. Its use in the fibrous form or as a structureless plastic is increasing rapidly, but the increase will be guided by the kind of cellulose available and the cost. A survey of the sources of cellulose and its use requirements shows clearly that wood is the most promising raw material. If we consider character of fiber, yields and other factors, few annual crops can be viewed with favor. Forage crops have been experimented upon repeatedly and finally rejected for some defect that prevented commercial exploitation Straw, the sole survivor, has its back to the wall. Its use in the paper industry in recent years has been limited largely to the manufacture of corrugated board. Today a cheaper and superior product is being made from chestnut and other hard woods by the semi-cooking process.

Inherent defects in the cellulose from bagasse and corn stalks, for example, are the physical and chemical properties of the pulps. The pith cells especially are so short as to be unsuited to the manufacture of the better grades of paper.[2] We have heard much of the future of alpha-cellulose from these sources for the manufacture of rayon and plastics. For its utilization, rayon has been hailed as a great gun, but the latter has been effectually spiked by Rommel by calling attention to the fact that a single county in Illinois could easily supply sufficient cornstalks for all the rayon made in the United States. It is even questionable if there is a legitimate use for cornstalks in the rayon industry but the expectation that rayon will make a dent in the supply of cornstalks is Utopian.

Advantages of Wood

The obvious advantages of wood as a source of cellulose are as follows:

1. Character and flexibility of fiber: wood cellulose has a broad field of usefulness such as in rayon, kraft paper, or writing paper. It has invaded every field in which cellulose is used. Formerly the best grades of book and writing papers were made only from linen and cotton rags. Today alpha-pulps from wood are direct competitors.

2. Compactness: This is of importance for transportation, storage, resistance to decay, handling in the mill and output per unit of digester capacity.

3. Trees can be left in the woods until needed. There is no forced annual harvesting.

4. Raw material independence. Wood can be grown and harvested on a large scale, the transactions passing through but few hands. A pulp or paper mill requires a large initial investment and capital will not be risked readily where the supply of raw material is dependent upon hundreds of small producers. To assure itself of a supply of bagasse the Celotex Company became interested in the growing of cane.

Trees as Cellulose Producers

Trees are wonderful manufacturers. In the quantity and quality of their cellulose they excel any of our forage crops. It may be illuminating to mention that during the period 1920 to 1926 the average yield of cotton was only 155 pounds per acre. Well managed woodland will produce 2,000 pounds of cellulose per acre. The annual having the most promising fiber is flax, yet an acre of flax straw will yield only about 100 pounds of cellulose suitable for bond paper. Millions of dollars actually have been spent in experimental work, but cellulose is not being produced commercially from flax. In contrast we have the following yields of cellulose as pulp per acre per year from forest trees:

	Wood	Pounds Pulp (45 per cent yield)
Red spruce	1,000	450
Jack pine	3,000	1,350
Northern white pine	4,000	1,800
Loblolly pine	7,000	3,150
Slash pine	8,000	3,600

[1] Member TAPPI, C. F. Burgess Laboratories, Inc., Madison, Wis.

[2] Since this was written an article has appeared (Paper Trade Journal, March 7, 1929, p. 49) showing that cornstalk pulp contains dirt and unreduced parts of the plant; and that in order to make a satisfactory paper it has been necessary to add from 40 to 55 per cent of sulphite wood pulp.

These figures could be increased greatly under intensive management.

It is unfortunate that the spruces, which yield the most desirable pulps, should be of such slow growth. Necessity may force us to become accustomed to the coarser fibers of the pines. Slash pine is an exceedingly promising species for the thousands of acres of southern land unsuitable for agriculture. We read: "On account of its rapid growth, the high quality of lumber obtained from it, its large yields of rosin, turpentine, and pine oil, and the ease with which it reduces to an easy bleaching pulp, slash pine is worthy of consideration for replanting areas with a view to establishing a group of industries related to each other and dependent on a self-perpetuating supply of wood."

It is fitting here to recall the painstaking efforts that have been spent in the development of the cotton plant. The tree as a cellulose laboratory has received little consideration. It is a sober truth that nature voluntarily has never taken into consideration the needs of man, nor has she always dropped her seeds in the best situations. A case in point is the Monterey pine. Transplanted to the soil of New Zealand it has shown an astonishing growth. The climate of these islands appears to be particularly salubrious. A gentleman of repute informed me recently that our northern brook trout transplanted to its waters commonly grows to a weight of 12 pounds. Tradition renders it unethical to question a fish story, so we will pass it by. The figures given by the New Zealand Government on the growth of Monterey pine may be accepted with more equanimity. During half of the first 22 years of its life, the tree increases two inches in diameter annually. The mean annual increment over a 46 year period was 627 cubic feet, or 17,556 pounds per acre. In terms of pulp we obtain 7,900 pounds, almost 4 tons of crude cellulose, or 50 times the yield from an acre of cotton.

As converters of solar energy into the potential energy of carbon compounds, many species of trees surpass the best forage crops. The liberal estimate of two tons of corn stover per acre is equivalent to 0.713 ton of anthracite coal. Adding 0.325 ton for the grain the total becomes 1.038 tons. An acre of redwood forest will produce 300 cubic feet of wood, equal to 1.23 tons of anthracite. This calculation includes only the merchantable timber, not the bark and limbs. Eucalyptus will give 355 cubic feet equal to 2.478 tons of anthracite coal or 2.4 times that of the entire corn plant.

The burning or removal of the stems of field crops from the land may be uneconomic when we consider that the greatest hope for agriculture lies in intensive cultivation. Straw converted into fertilizer by the Adco process will bring greater returns than by being pressed into bales. Unless the stems are returned to the soil there is a loss of humus and carbon dioxide which is generated from the organic matter by microorganisms. This becomes of special importance where there is a short growing season. We have believed for long that sunlight is all important. Yet perhaps, according to Spoehr, the concentration of carbon dioxide determines the rate of photosynthesis more than any other factor. The concentration of carbon dioxide in the soil atmosphere is many times greater than in the air. The carbon dioxide produced by the decay of straw, e.g., may thus be of great importance, since it has been observed that the amount taken up by plants per unit area by photosynthesis approaches the amount generated in the soil. It has been further observed that leaves which normally form soluble carbohydrates but no starch, will form the latter if the concentration of carbon dioxide in the surrounding atmosphere is increased.

Cellulose Statistics

The use of cellulose fibers for paper far exceeds all others. During 1928 we will consume 9,000,000 tons. The greatest single chemical use of refined cellulose is for rayon of which we will produce 48,500 tons, which is only one-half of one per cent of the paper tonnage. The most optimistic future for cellulose derivatives must be tempered by the fact that for years to come the paper industry will be paramount.

The United States, in 1920, consumed 56 per cent of the paper produced in the world. Between 1899 and 1922 our per capita consumption increased from 57 pounds to 147 pounds and the curve is still ascending. Great Britain's per capita consumption is less than half. The saturation point for printed matter is not in sight. Cost alone has not been a deterring factor for the increased demand for paper has come in the face of a several fold increase in the price of pulp wood.

The consumption of paper by a single modern newspaper is tremendous. A Sunday paper weighs one pound and a run of 1,000,000 copies is not uncommon. During the mayorality election in Chicago in the spring of last year, the Tribune printed 921,530 copies of a 52 page paper. This required 388 tons of news print. Translated into wood, it represents 580 cords, or all the trees from an 85 acre tract of virgin forest in Quebec.

I am not sanguine regarding a future shortage of cellulose or that we shall ever be able to use in its natural form all the cellulose that forestry and agriculture can produce. It is safer to view this carbohydrate as a potential form of energy. Cellulose can be converted almost quantitatively into glucose. Fermentation will convert this glucose into actone, ethanol, butanol, glycerol, lactic acid, and other products of great value in the arts. If all the wood waste and all the cereals produced in one year in the United States were converted into ethanol, the energy represented would not equal that of the gasoline consumed in our automobiles. Unquestionably one of the greatest benefits to agriculture would be the discovery of a cheap method of converting cellulose into sugars. Perhaps this step is unnecessary and that the bacteriologist will discover microorganisms that show less reluctance to breaking down cellulose directly.

A Challenge to Rayon

The domestic production of rayon in 1928 will be about 97,000,000 pounds. This is 12 times the output for 1920 (8,000,000 pounds). As previously noted this is about one-half of one per cent of the weight of paper consumed. To what extent the rayon industry will expand, no one can tell. Fashion is a fickle mistress, but the days of cotton hose are probably gone forever. The greatest limiting factor is the wearing quality of rayon and this affords a broad field for reserach. In the natural fiber, the cellulose crystallites possess a regular orientation which permits strong cohesion, while in rayon they are simply jumbled together. A well shingled roof affords excellent protection against the weather. We would neither expect nor receive this protection if the same shingles were thrown about in hit and miss fashion. Less drastic means for bringing the cellulose into a form suitable for spinning should be beneficial.

It is reasonably certain that the present methods of manufacturing rayon will not obtain in the next generation. New and better cellulose derivatives will be available. It may not be wide of the mark to suggest that in some cases we may start with the simple sugar glucose rather than with its polymerized form cellulose. It is not beyond hope that we will have products resembling the fibroin of true silk, the keratin of hair and wool, and the chitin of insects and crustaceans. We should question these compounds closely. Just what property does sulphur impart to keratin? Since all of the above compounds contain nitrogen, do amino groups impart wearing quality and resistance to the elements? Chitin is the simplest compound with which to begin our research. We know that it can be resolved into acetylglucosamine. The valuable properties of acetylcellulose have long been recognized. Cannot these be enhanced by introducing an amino group in the proper position to obtain a product resembling chitin? Certainly we should not rest until we have shown the creative ability of a lobster.

Utilization of Pulp and Paper Mill Wastes*

By C. M. Baker[1]

The utilization of saw mill wastes is considered one of the outstanding economic reasons for the development of the pulp and paper industry on the Pacific Coast. Utilization of wastes within the industry itself, however, is necessary if this advantage is to be fully realized. Furthermore, many of these wastes constitute objectionable sources of stream polution which under certain conditions, may deleteriously affect the fishing industry. The problem of stream pollution, however, is to be discussed in a separate paper and, therefore, will not be considered at this time. Primary consideration is given in this paper, however, to those mill wastes which are factors in stream polution.

White Water Utilization

A closed white water system can be used with real benefit. Its installation and operation is a practical realization in a number of mills. Nevertheless fiber losses through mill sewers still cost the pulp and paper industry of the United States upwards of $6,000,000 annually and fiber losses do not constitute the only waste contingent with inefficient white water utilization. Savings are also effected in water, chemicals and power, with a closed system.

White water utilization resulted in a saving of $600. monthly in one mill purchasing its water supply from a municipality. A board mill reported a daily saving of $25.00 in fiber and $75.00 in power or heat conservation. Material savings have also been reported in filling and sizing. Furthermore, these savings have been effected without deleterious effect upon the product. In fact, in many cases a better paper has been produced, due to increased opacity and better cementing of the fibers through retention of the fine and more completely hydrolized celluose.

Western Mills have been considered rather effective in their white water utilization through the use of efficient save alls. One western mill purchasing its water supply from a municipality at a cost of about $150. daily, however, is using approximately 60,000 gallons of water per ton of product, while a similar mill located in another section of the country, uses only 20,000 gallons. A reduction of the water supply in this amount would effect a saving in this western mill of about $100. per day. Another western mill is loosing fiber which it is feasible to recover, valued at about $30. daily. Substantial losses have also been observed in other western mills visited.

Procedure Followed in Closing White Water System

There are four important steps in the development of a closed white water system as follows:

1. A white water survey is first necessary to determine existing losses and the extent to which expenditures for their recovery are economically feasible. Furthermore, such a survey is essential later that the result of improvements may be evaluated.
2. The reduction of fresh water to a minimum, irrespective of white water utilization, is essential,—both to economize water waste and to simplify the white water problem.
3. Recirculation and reuse of white water without savealls is the next logical step. This further reduces the amount of fresh water required, recovers a certain amount of fiber and reduces the expenditure necessary for savealls and other equipment.
4. Saveall equipment should be the next item of consideration with a view first of recovering fiber and filler and returning the saveall effluent to the white water system, and second, of treating any residual white water which it may be necessary to waste.

In the application of these improvements, careful consideration must be given to local conditions. Methods applicable in one mill may not be practical in another. The recovery of fiber from white water, is a relatively simple process but its utilization without deleterious effect on the product may envolve careful adjustments. Formulæ used in the original set-up of a sheet may have to be changed to compensate for the chemicals returned as the white water is utilized. This, however, results in saving of chemicals.

Time is not available nor does it seem necessary to discuss the details of a white water survey. It should be emphasized, however, that care and thoroughness are necessary to secure reliable results. Measurement of flow must be accurately made and representative composition of samples carefully collected and analyzed by recognized standard methods. Analytical procedure has been studied by a special committee of TAPPI which reported its findings at the meeting in Richmond, Va., on Sept. 24, 1929.

Reuse of White Water

Practically every mill is extravagant in its use of fresh waters. "How much" rather than "how little" water can be used appears to be the common slogan. Wash up hose are left running. A twenty-five foot three-quarter inch hose running freely under twenty-five pound pressure will discharge from 35,000 to 70,000 gallons of water daily and a one inch hose from 60,000 to 100,000 gallons. Substantial savings can be made by a check up and curtailment of this waste, for water is a commodity of value even though the only cost to the mill is that of pumping. Furthermore reducing the amount of water in the mill simplifies the white water problem.

White water recirculation or utilization may be accomplished to a considerable extent without savealls. One board mill reported a reduction in water consumption from 28,000 to 3,000 gallons per ton of product by merely recirculating the white water upon the showers without using savealls. The writer was very much surprised recently to visit a news mill operating its machine without any showers. The trays under the wire had been eliminated except for one about three feet wide next to the breast roll. This permitted the water from the upper wire to drop through on to the lower wire. No difficulties were encountered because of fouling of the wire. If this can be accomplished certainly white water can be used upon the showers after passing through savealls.

The writer is thoroughly convinced that a closed white water system upon a paper machine is a practical and economical development. Whether highly efficient savealls are necessary however, is a question. In many instances it is believed that a low grade saveall will satisfactorily clarify the white water to permit its recirculation.

In the development of a closed white water system slime control by chlorination or some other effective method, will be necessary in most cases. Many mills are now using chlorine for this purpose. Data available indicates that from one to two pounds of chlorine per ton of product is effective. A residual of 1/10 to ½ parts per million is usually maintained. The point of application depends largely upon local conditions.

Sulphite Waste Liquor

The utilization of sulphite waste liquor has not generally proven economically practical notwithstanding the fact that it contains about 50 per cent of the dry weight of the wood and that between 700 and 800 patents have been taken out for its utilization. In some cases, however, it has been utilized at a small profit under

* Presented at fall meeting Pacific Coast Section of TAPPI, Tacoma, Wash., October 5, 1929.

[1] Member TAPPI, Engineer, American Paper and Pulp Association.

exceptionally favorable local conditions and in others its recovery at a loss has been necessary to control stream pollution.

Most of the patented processes are based upon the recovery of products for which there is not sufficient market outlet. A chemist friend of mine recently described his experience in this respect as follows:

"I conceived the idea of recovering a certain chemical from sulphite waste liquor and secured a supply from one of the mills for tests in my laboratory which resulted in the production of two pounds of the chemical. This I sold to a wholesale chemical house in New York for $10.00. About a year later I again offered the same product for sale to the same house and was informed that they still have on hand the two pounds purchased from me the year before".

Alcohol has been successfully manufactured from sulphite liquor but this is of questionable economic value. Furthermore, the residual waste is practically as objectionable as the original from the standpoint of stream pollution.

Two basic processes are envolved in the most promising developments in sulphite waste liquor utilization at the present time, viz:

1. Evaporation, and burning in the industry itself or using as a binder for briquetting coal. Other outlets are also available to a limited extent for the concentrated liquor but evaporation is the first step.

2. Precipitation of the sulphurous compounds and the reuse in the mill then further precipitation of the lignins and resins and drying and burning them.

Evaporation

Sulphite waste liquor has been, and is being, successfully evaporated in a number of mills both with and without neutralization. Evaporators that have been used successfully for this purpose include the Scott, Kestner, Zaremba, Swenson, Buffalo Foundry and Machine Co., Joubert & Goslin Machine & Foundry Co., and the E. B. Badger & Sons Company's equipment.

The residual, or evaporated liquor, is being utilized in some cases at a concentration of about 30 deg. Be' and in other instances it is being evaporated to a dry powder. One of the most promising outlooks for the evaporate is in the briquetting of coal. Practically all of the output for one mill is being used for this purpose in Pennsylvania. Recent developments indicate the practicability of mixing the concentrated liquor with waste wood and thus burning it.

Data available, however, indicates that it is not economical to evaporate and burn sulphite waste liquor where the cost of coal as fuel is less than $5.50 or $6.00 per ton. Where fuel value is less than this amount the mill will operate at a loss in the utilization of sulphite waste liquor.

The so-called Howard process has been developed at the Marathon Paper Mills, Rochschild, Wisconsin. This consists first, of precipitation of the sulphurous compounds which are used back in the process, and second precipitation of the lignins and resin which are burned. The writer is advised that while this process is not yet definitely placed on the market, the company is in position to negotiate with any mill that is particularly interested. Experiments have been conducted for over two years and the results are so promising that the Marathon Mills are planning the installation of a full size plan.

Sulphate Process

The waste that has caused the most trouble in connection with stream pollution from the sulphate process, is the lime sludge. A number of the western mills, however, are succesfully and economically recovering and reburning and utilizing this material back in the process. In fact, it has been reported that one mill in the East which had accumulated a large quantity of sludge by lagooning installed a kiln for its reburning and operated for several years upon the accumulated material. The economy of this, however, appears to depend upon the local cost of lime. Where lime is high, as on the western coast, its recovery is feasible, and where it is cheap there is some question of the economical status of its utilization.

In conclusion, the writer wishes to emphasize the necessity of greater economy on the part of the mills in utilization of waste. This is necessary not only for the economical development of the pulp and paper industry itself, but also to prevent stream pollution to such an extent as to interfere with the development of other industries and economic resources.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Alkaline Processes

Wood Pulping Process. L. Bradley and E. P. McKeefe. Can. pats. 279,696 and 279,697, April 24, 1928. *No. 279,697.*—Wood is cooked in a liquor comprising substantial amounts of caustic soda, sodium sulphite and sodium sulphide. *No. 279,697.*—Wood chips are digested with a cooking liquor which contain sodium sulphide and sodium sulphite. The residual liquor thus produced is concentrated, the organic compounds are decomposed and a produce is formed which contains sodium carbonate. A solution of the soda compounds is prepared and the solution treated with a sulphite, whereby sodium carbonate is converted into sodium sulphite. The liquor thus produced is employed for cooking.—A.P.-C.

Sulphate Pulp. G. A. Richter assignor to Brown Company. Can. pat. 279,810, May 1, 1928. Raw cellulosic material is cooked in an alkaline solution of caustic soda and sodium sulphide and the sodium compounds of the waste alkaline cooking liquor are melted in an oxidizing atmosphere, the resulting sodium compounds being recovered in solution. This solution is acidified with sulphur dioxide and cellulosic material is cooked in this acid solution, the sodium compounds of the waste acid cooking liquor being smelted and the resulting sodium compounds being recovered in an alkaline solution. Any sodium carbonate in this solution is causticized with lime and the insoluble carbonate is removed. Raw cellulosic material may then be cooked in the resulting solution, a cycle of operations being thus completed.—A.P.-C.

Washing Cooked Straw. De Witt C. Amerine. U. S. pat. 1,678,718, July 31, 1928. In treating straw to prepare it for making strawboard or paper, it is cooked with a lime sulphur composition in a rotating vessel while treated with steam under pressure, and washing water is subsequently supplied against the steam pressure while continuing the rotation of the vessel; the steam pressure is reduced and a portion of the liquid is withdrawn from the vessel.—A.P.-C.

Bleaching

Action of Ultra Violet Rays in the Bleaching of Cellulose. Rene Escourrou, Societe des Papeteries Navarre. Pulp & Paper 26, 1549-1552 (Oct. 25, 1928). The action of ultra violet rays

was found to accelerate the bleaching of cellulose by chlorine bleach liquors, increase chlorine consumption (due both to formation of chlorates and to attack of the cellulose proper), increase the copper number of the bleached pulp, decrease the alpha cellulose and increase the beta and gamma cellulose contents of the bleached pulp. Practically no effect was observed in the case of bleaching with hydrogen peroxide or ozone and in the treatment of pulp with caustic soda or sulphuric acid.—A. P. C.

Pulp Bleaching. C. B. Thorne. Can. pat. 282,025, July 24, 1928. Pulp mixed with a bleaching agent and water is fed to the bleaching zone and bleached at a consistency of 15 to 20 per cent and subsequently mixed again with the bleaching agent and water and bleached at a consistency of 10 to 15 per cent.—A. P. C.

Beating Engine. Leo Schlick. U. S. pats. 1,675,385, July 3, 1928 and 1,679,056 to 1,679,059 July 31, 1928.—*No. 1,675,385.* The beater roll is placed at the narrower end of the tub, which is approximately pear shaped. The backfall is on the same side of the roll as that from which the stock is fed, and an adjustable plate extends from the crest of the backfall to the top of the roll, so that the stock, after passing between the roll and bedplate, is thrown over the top of the roll. An apron board is provided close to the roll and extending from the backfall downwards to prevent the oncoming stock from engaging too large a portion of the face of the roll. The fly bars are preferably inclined backwards from the points where they emerge from the roll in order to more efficiently throw the stock over the deflector extending from the crest of the backfall to the top of the roll. *No. 1,679,056.* The tub is made circular with a hollow midfeather and two diametrically opposed rolls, a bedplate being disposed beneath each roll. The knives of the beater rolls are not parallel with the respective shafts, but are advanced at one end, so that the corresponding ends of the knives will reach the bedplate before their opposite ends, the ends of the knives nearest the midfeather preferably engaging the bedplates first. The knives are curved, instead of straight, the convex edges moving towards the bedplates as the rolls revolve, so that any air entrained between the knives is thrown towards the outer wall of the tub. In the outer wall of the tub, opposite the end of the roll, is a hole covered with a screen and connected to a suction pump which draws out the air together with a considerable amount of water, and the latter is delivered back into the tub back of the backfall. Any strings adhering to the roll are carried over the latter and are caught on a series of slightly inclined, nearly vertical rods, from which they are washed down into a small trough by means of a series of slowly rotating sprays. The whole tub is mounted on trunnions, so that it may be adjusted either horizontally or given a slight forward or backward tilt as may be desired for varying the circulation of the stock. Each beater roll is provided with a series of knives spaced from each other sufficiently to make room for a row of lugs between each pair of the knives so as to support fly beaters pivoted on a rod loosely penetrating the beater and lugs. Each roll is provided with a vertically adjustable deflector, which is mounted so as to automatically remain at a fixed distance from the roll, irrespective of the adjustment of the latter. The bedplates extends through a greater arc than usual, and the seat for the bedplate knives is preferably made concentric with the roll in order that all the knives may be alike and that their operative portions are presented radially to the roll. The bedplate knives may be of varying thickness, those first met by the roll being the thickest. The hood, which is circular immediately above the crest of the backfall, with its concave surface below, is extended along the top edges of the side walls of the tub tangential to the curvature (or curvatuve,) and thence to a point beyond the foot of the backfall. By thus providing the hood with a curvature concentric with the crest of the backfall and an extension sloping downward and tangential thereto, the stock which is thrown up against this concave surface is made to pass forcibly along the surface of the extension instead of permitting any portions of the stock to accumulate thereon. *No. 1,679,057*—To prevent jarring the mill, foundation pillars are sunk deep into the ground, and upon them are located a foundation and the beater tub, all being preferably made of concrete and hardened into an integral whole. The hood is preferably made of concrete, together with the backfall, and integral with the tub. The floor of the mill is made to closely surround the tub, but not in contact therewith, and is elevated to enable a man of ordinary stature to see down into the tub and note the condition of the stock. The backfall is elevated so that its crest is well above the beater roll shaft, and the hood is given a concave under surface in order to direct on back of the backfall the stock thrown upward by the beater roll. A curved, adjustable apron board is provided in front of and close to the beater roll, to prevent the fly bars from striking the surface of the incoming stock and mixing air with it, and also to direct the stock between the roll and bedplate. The tub channels are made substantially circular in cross section to reduce friction and increase the speed of circulation. Mechanical features are also provided to obtain a more perfect balancing of the beater roll and a more reliable means for automatically shifting the deflector when the beater roll jumps. *No. 1,679,058.*—The backfall is provided with an adjustable backfall plate, preferably of metal, the lower edge of which is stationary at the foot of the backfall, while the upper portion has a leaf bent nearly at right angles thereto, which is located against the face of the backfall next to the roll. The hood above the roll and backfall has a deflector portion extending down almost in contact with the roll to act as a doctor and prevent the stock from following the roll instead of going over the backfall. The whole hood is pivoted and supported in such a manner that it rises when the roll jumps, to prevent the fly bars from striking against the deflector. Between the backfall and deflector is an adjustable "deflecting curb," which enables a relatively low backfall to be used so as to allow heavier portions of the stock to pass over, while the more fluid portion of the stock is thrown up and over the "curb." At the extremity of the hood furthest from the roll is a hinged curved plate which has its free edge below the level of the crest of the backfall and which is sufficiently heavy to retain such a position even against the rush of the stock as it pours down the backfall and along the channel of the tub. The function of this plate is to build up a head of stock and thus increase the velocity of flow down and away from the backfall *No. 1,679,059.*—Some distance in front of the roll a "lifting wheel" is mounted in the tub and is rotated by the flow of stock towards the roll. The stock which passes into the "lifting wheel" is delivered at the face of the backfall; as the ends of the wheel are covered with a fine screen, only the more fluid portion of the stock is delivered to the backfall, and this aids in accelerating the flow of pulp down and away from the backfall by introducing a more fluid portion beneath the heavier stock. The fly bars are bent at their midlengths so as to present the apex of each to the bedplate and thereby facilitate the expulsion of the entrained air from between them and to permit the stock to enter more freely between the fly bars and bedplate. In order to drop the beater, a vertically slidable gate at one end of the tub is slowly lowered to permit the stock to be discharged; the gate should not be lowered right down to the floor of the tub, but should be stopped with its top edge far enough above the floor to hold back all particles of metal, and any hard lumps of pulp which have failed to be ground up. A. P. C.

Beating

Hydrating Cellulose Fiber. J. A. De Cew. Can. pat. 282,228, August 7, 1928. Cellulose fibers are hydrated in a beater of the Jordan type by thickening the stock to an air dry concentration of over 4 parts of stock to 96 parts of water and forcing it through the beater.—A. P. C.

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THOS. J. BURKE, C. A., Sec.-Treas.

Financing in Pulp and Paper Mills*

By Newton V. Wagner, C. P. A.[1]

You are probably wondering why a public accountant is here to talk to you about financing. For the last ten years I have been listening to men negotiate for long-term credit, for some years as the buying officer of a securities company and for many years as an accountant handling a considerable volume of financial investigations. There are a lot of things I have seen during that time that I am sure would interest you and I wish I could tell you about all of them but I will try to confine myself to a discussion of how the accountant may be useful in financing negotiations.

I have always been amazed at the lack of preparedness with which corporation officials will often tackle the problem of selling a bond issue or stock issue, and at the inability of many corporations to quickly produce the kind of information which the banker wants to have and which would be very useful in the negotiations.

What the Banker Must Know

The banker has several things about which he must be satisfied. He has a great many uses for the information which he wants. He must first satisfy himself that the business is sound and that the securities have investment merit; he must assure himself that the earnings and financial condition of the corporation are such that the securities are satisfactory to the stock exchanges or to the state regulatory bodies and then he must make sure that the securities appeal to the public. All of this any corporation official should know; if he doesn't know it, he can easily learn it, and knowing it he certainly should be at great pains to plan his negotiations to fit these requirements. I have seen a great number of cases where negotiations have been started without any plan whatever. Somebody suddenly decides or finds out that the company needs a lot of money. Maybe it is going to expand; maybe they have expanded and didn't plan for it in advance, and the treasurer decides that he is going to board the train that night and go to the city. He calls in his accountant and says, "Now, Bill, I want a five year statement of earnings to take with me tonight." He doesn't tell the accountant what it is going to be used for and the result is a lot of figures are thrown together hastily, and that statement is tacked onto the financing contract as a "form representation." That usually results in grief. No representation should ever be made in connection with long-term financing unless the company is reasonably sure that there will be very little discrepancy between those representations and the findings of the public accountant who investigates the "representations" for the banker.

There are a number of reasons why we very frequently find variations between the company's figures and our final figures. One is that in a great many companies, the operating side is heavily stressed and the financial side is neglected. The operating side deals with cost statements, daily, monthly and weekly reports. It is closely concerned with immediate results. The financial side, particularly the broad financial side which the banker looks at, deals with trends. The banker is not interested in your monthly statements for a period of years back; it doesn't mean anything to him, but he is interested in the trend of the business over a period of years and the trend of the business in relation to the trend of the industry. That means that he places stress on annual statements.

Consisted of Nothing but Trial Balances

I have seen a great number of mills where the financial uses of statements were disregarded to the point where the companies' annual reports consisted of nothing but trial balances. This is rather an extreme example. You find many mills where the annual statements consist of nothing but a condensed balance sheet and three or four figures of data on earnings. I have seen mills where the management could not produce annual data on any detail relating to the operations.

CHAIRMAN BURKE (Interrupting): Is that recently?

MR. WAGNER: That is within the last two years; going back ten years that condition was, of course, much more prevalent. Following the break in 1920 and 1921 a great many mills went through the agony of refinancing in connection with which the bankers required accurate statements satisfactory to them, so a great many of you have been educated to make greater use of available data.

I think we are facing another condition in the industry where we may again have a large volume of refinancing. We are coming into an era of heavy competition. We are going to have various developments. We will have mergers in this country, although there have not been as many in this industry as in many others. Mills which are not advantageously located for the production of their products are changing from one type of product to another. Some are expanding their facilities for greater volume. All of this requires some sort of financing and I think the volume of this will increase.

Balance Sheet and Statement of Earnings

There are two things that the banker will require as a minimum; one is a balance sheet and the other is a statement of earnings for a period of years. If financing negotiations are properly planned the official goes to his bank with a complete story. Investigations are going deeper today than they were ten or fifteen years ago.

* Delivered at convention of the Cost Association of the Paper Industry, Wausau, Wis., Sept. 20, 1929.

[1] Arthur Andersen & Co., Chicago, Ill.

For instance, today our larger banks and bond houses are going beyond the direct financial side into the operating details and are investigating management, industry, products, production methods and other phases of business.

CHAIRMAN BURKE (Interrupting): May I ask a question? Is it a fact that banks are specializing in industries?

MR. WAGNER: That is true to some extent. You have some houses who confine themselves almost entirely to the financing of some particular line of industry. For example, we have one or two houses in New York who confine themselves to the financing of chain stores. There are others who confine themselves to the financing of department stores and so on. I don't know of any house which confines itself exclusively to the financing of paper mills. There are some whose principal line may be paper mills but we have very few large houses that specialize to that degree. Specialization by bankers is limited to businesses in which they can obtain an interest. Some day that may become true in the paper industry. No doubt it will, as we proceed with mergers of various groups, perhaps mergers of local groups or mergers of scattered groups manufacturing various lines of paper products which may be brought together in a single distributing unit.

One statement which is very seldom prepared but which is immensely useful in negotiations is a summary showing the manner in which the net worth of the business has been built up over a period of years. This is most useful if it can go back and summarize the history from the inception of the business. It is a very simple statement. Down the left hand side the years are tabulated and there may be four columns across the top, headed Year, Surplus Net Profits, and Cash Dividends (divided between common and preferred) and Balances. Down at the bottom is added the capital paid in by the stockholders, whether in property or cash, and any extraneous items such as appraisal, surplus or paid-in surplus to arrive at a total which will agree with the net worth. This statement gives the history of the business in a nutshell. It shows what the profits have been; it shows the policy of the management with regard to the distribution of dividends; and it shows the proportion of the net worth which has been built up out of the earnings.

May Disclose Weakness or Strength

This statement may disclose weakness or strength. If it discloses strength it may be valuable to you. If it shows that the company has earned a profit in every year since it was organized, that it has paid dividends in every year since it was organized, and yet has built up three-fourth of the net worth out of the earnings retained in the business, it is an important factor in negotiations because it tells a story which will appeal to the prospective investor and is something which the banker can advantageously use in the distribution of securities. All through your analysis of your accounts, and planning for negotiations, look for points like that. They may not always be important in determining whether the issue is sound or not, but they have an appeal which is important in connection with the public distribution of securities. If your securities are going to be easily salable, you ought to get a better price for them. For instance, the spectacular history of the Marathon Paper Mills is a point which will aid them if they ever go into outside markets to sell securities. Everybody in Wausau knows it. That mill was practically wiped out twice and the story of how it was rebuilt and the courage of one man in going ahead the third time against the judgment of his partners and developing that mill to be one of the most successful in the industry, is something which has a tremendous appeal and which would be a considerable factor in telling the story to the public.

There is another statement which is not very often prepared which brings out conditions rather clearly and which I have always found useful. Bankers who have been receiving such statements want to continue to receive them. That is, a statement of the application of funds showing the sources from which funds have been derived and the manner in which they have been expended. It is not a cash statement. The term "funds" is used in a very broad sense. The statement is built up from an analysis of the changes in financial position over a period of years. The sources of funds, of course, will be earnings after adding back non-cash charges such as depreciation or amortization, proceeds from sales of securities and other funds which may come from numerous sources and, of course, there will be any number of expenditures, such as for additions to property, retirement of securities, and so forth.

Prepare It Intelligently

You probably know how such a statement should be prepared. The essential thing is to prepare it intelligently and to so classify the items that they tell the story. It is not sufficient to tabulate increases and decreases. For instance, I know that a great many accountants in showing the earnings instead of adding back the full depreciation charge, only add back the net increase in the reserve, which is not right. The full depreciation charges should be added back, and if there have been expenditures charged to the reserve they should be shown as an expenditure. When you are showing the disposition of funds you show one item for additions, and improvements charged direct, and another one for renewals charged to depreciation.

Another way in which the statement may be made to bring out the facts more clearly is to deduct the cash dividends from the earnings rather than to show them as an expenditure down below. This brings out the significant figure of earnings retained in the business.

Such a statement by years for a period of five years will bring out rather clearly the financial policies of the management during that period. It will show whether or not they have dissipated earnings through dividend payments perhaps concurrently with large expenditures for plants. It will show if they have been conserving their earnings. Perhaps they have been putting them all in plant operations or perhaps hoarding them. It will show if they have been impairing their working capital through unwise expenditures. It will show a lot of important things and show them in one statement.

In the presentation of any statement for banking purposes, form is a very important consideration. I very often have had bankers call up and say, "We are talking to so-and-so about some financing and we asked them for earnings and balance sheets. They have sent in a lot of papers we can't make head or tail of. Come over and tell us what they mean." Sometimes I can tell them what they mean and sometimes they are so bad no one except the man who prepared them can tell what they mean. I have even seen people send in trial balances and call those statements.

Do Not Use Local Terminology

One thing you want to avoid in preparing statements for a banker is using terminology which has only local significance. For instance, you may carry a reserve on the books for some special purpose, you may have your own special terminology for that which, perhaps, everybody in your office understands, but perhaps nobody outside of your office understands. If you put that in your statement and it goes out somebody is going to write a letter and want to know what it means. That takes time and means delay. Perhaps the man doesn't write a letter and you then face the problem again of having a discrepancy between the representations as they were understood and the final findings of the auditor. That is something to avoid.

When you are preparing these statements try to take the other man't viewpoint. You know that nine times out of ten, if you do not have an auditor who is already satisfactory to the banker, that another auditor will investigate your "representations." Try and think what that other auditor is going to ask. Then think about what adjustments he would make in your accounts if he were to make a statement of earnings to cover a period of years. There is where I think auditors run into most trouble. Of course,

they run into many cases where their adjustments are relatively small; but time and time again the adjustments are enormous and might just as well have been anticipated by the company.

Do not think that the statements which you submit need to agree with your books as between years. You cannot keep your books to reflect your profit by years with technical exactitude. It would be absurd to try to do so. You cannot afford to keep your books open at the end of each year to include every minute item that belongs in the year you are closing. Nor should you try to charge all items applicable to the prior year to your surplus account. It is wrong. It is not technically wrong but it is poor technique and very poor policy. I can recall a case of successive annual reports of a paper mill showing direct surplus charges in relatively large amounts, made up of possibly twenty to thirty items. I suppose the accountant thought he was impressing on some one that he was extremely careful. He did a lot of clerical work, but what he did was impractical.

I have seen a surplus charge as small as one cent for adjustment of cash discounts for the prior year. That is an absurd example but it shows how far some people will go.

Overlapping Items

You will always have overlapping items. When you have a large item applicable to a prior year take it up as a special charge in your annual statement and do not throw it into the surplus account because the total as shown by your profit and loss accounts over a period of years should equal the earnings of those years.

There are many things that the auditor will adjust between years. You will have outstanding liabilities. A man coming along a few years later has the advantage of subsequent information. He can go through the accounts and find liabilities which now can be put back in the proper year. You ought to do the same thing, if you are going to prepare a statement to be used as a representation in connection with financing. The outstanding liabilities are fairly easy to handle as they can be identified with the particular years. The one liability auditors most frequently find difficulty with, is the matter of Federal incomes taxes, which may be paid with penalties or interest some three, four, five or ten years after the period to which they apply.

The other item that causes a lot of trouble is inventories. It doesn't make so much difference what the basis of valuation of your inventory is, so long as it is consistent throughout the period which is being covered. It will not do to price the inventory at raw material cost one year, then the next year add the labor cost, and the next year pick up the overhead. Sometimes it results in gross distortions. I have seen a good many cases where companies have tried to establish the legitimacy of such a basis. This usually happens when the last year is a bad year and the company wants to pick up a lot of inventory items they have left out in prior years. The auditor is bound to make an adjustment for a discrepancy of that kind, and while his adjustments in the aggregate over a period may amount to nothing, between years they may amount to a great deal and may very readily open the door to new negotiations, change in price of the securities, or change in conditions of issuing such securities. That happens every day and usually the company comes out on the short end.

Limits to Conservatism

Another difficulty that we have with inventories is this. Conservatism is commendable in all or at least most things, but there are limits to conservatism. It is all right to make provision for obsolescence or damage, or for market declines; it is all right to make allowance for possible loss in wood yield. Those things are proper but it is wrong to carry them so far that you open yourself to the charge of having cheated the government. There are many companies who overlook that point entirely and who overlook the fact that over-provision for these things is very easily detected. This applies not only to inventories but to the handling charges to the property accounts.

It is perfectly all right to have conservative policies for handling capital charges. For instance, many companies have a fixed minimum which they will charge to the property accounts. It is a mistaken policy to try to capitalize items of a dollar or two dollars here and there because the clerical cost of analyzing such items is too great. I recall a case in another state where the company said it had been conservative but finally admitted it did not want to pay taxes and had cut the inventory one year, next year left part out, and the next year left more out. The process was accumulative so the discrepancy became greater as time passed. In that particular case the management thought they had been very smart as the Federal man had not caught it, but the auditor caught it in about six hours.

The same thing is true in large items of plant. Improper write-offs are not hard to catch. No good auditor confines himself to the books or the records that are given to him. He is going to look into your property accounts; he is going out to talk to your plant superintendent or your construction engineer and he is going to ask questions. Perhaps he will ask direct questions; perhaps he is going to gossip with plant employees, and maybe he will find out a lot of things that somebody doesn't want known.

An Amusing Example

Here is a rather amusing example of how that may happen. It was the case of another industry not involving taxes that worked really the other way. It was not a case of conservatism; it was a case of over-statement, where the company wanted some financing. They were making a particular mechanical device and had a very large inventory. We were on the lookout for obsolescence. Model changes had been very frequent over a period of years, and our men were nosing around and found some obsolescence, but had a suspicion that there was more. We worked on that thing for a week and talked to nearly everybody about the place. Finally one of the men visiting in an outlying storeroom took a shot in the dark and said to the store-clerk, "Gee, you have a lot of obsolete stuff here." The young fellow answered, "If you think that is a lot you ought to see what we have in such and such a place."

That shot in the dark brought to light about five or six hundred thousand dollars worth of obsolescence. As a matter of fact the company was later financed by some one else who was taking a chance and the bondholders lost about a hundred cents on the dollar.

In the presentation of a balance sheet be careful that the constituent items are properly classified and that a full disclosure of liabilities is made. Many a corporation has encountered trouble in banking negotiations because its balance sheet items have been improperly classified, not because of intentional misrepresentation, but because of failure to visualize the viewpoint of the banker and the investor. Many a fat figure of accounts and notes receivable has been found to include large amounts of officers' accounts, permanent advances to affiliated companies, contingent claims for tax refund or for other items not properly described as current assets.

Accounting practice must follow sound business practice, and it is a general rule in business that if an account is due within a year, it is a current asset provided that it is an account incurred in the ordinary course of business.

A Point for Argument

There is less trouble in the classification of inventories than in the classification of receivables. It is always a point for argument among accountants as to whether or not supply inventories should be included in current assets. There are many excellent arguments for classifying them as deferred charges, but the company which classifies them as deferred charges may be penalizing itself as compared with a corporation which defers heavy purchases of supplies until after the balance sheet date.

It frequently occurs that the liabilities as shown by the company's statement to its bankers do not agree with the liabilities as finally determined by the auditor in investigating the representations. This discrepancy occurs because the corporation official overlooks the fact that contingent liabilities are just as important as direct

liabilities, and he fails to appreciate that a direct liability cannot be converted into a contingent liability by the simple expedient of believing that the corporation will never be called upon to pay the amount in question.

The Most Embarrassing Liability

Perhaps the liability which causes the most embarrassment and which is the most frequent subject for adjustment, is Federal income taxes for prior years. If the tax has been actually assessed it is a liability even though it may be under abatement. The corporation may never be called upon to pay it, but nevertheless it is a liability. Where the government has not assessed the tax but has rendered a report showing a proposed additional tax, the such proposed liability should be shown in the balance sheet as a contingent liability, or if the company's case in fighting such proposed assessment is weak, a liability may be set up in the form of a reserve for contingencies. In any event a full disclosure of the status of Federal income taxes should be made.

Frequently corporations make the mistake of erroneously deducting liabilities from assets without a disclosure. Excepting where the amounts involved are nominal, this may result in serious discrepancies between the representations and the findings of the auditor. There is no reasonable basis for deducting mortgage or contract liabilities from the assets to which such liabilities are applicable, even though the company is not technically liable to pay such liabilities. As a practical matter they are direct liabilities and should be so treated. I recall a case where a paper company was obligated to purchase several million dollars worth of timber lands on a land contract basis. The balance sheet of the company showed the net equity in these timber lands as an asset and no disclosure was made of the amount of the unpaid balance on the accounts. An audit disclosed that the unpaid balance amounted to approximately $1,500,000, of which $600,000 was due within six weeks from the date of the balance sheet, an item substantial enough to materially change the working capital of the corporation as shown by its statement. This item was important not alone because it resulted in reopening of negotiations but because it created a very unfavorable impression in the mind of the banker.

If a debt is due within one year from the date of the balance sheet, it is a current liability. It is not always practical to handle an item of this character as a direct current liability, but in any event full disclosure should be made. For example, a corporation may be obligated to pay a fixed amount of money annually by way of a sinking fund to retire funded debt or preferred stock. It cannot be determined in advance what par value of securities can be retired with the funds available, and it would be a distortion of facts to show a current liability for the sinking fund against a contra asset account on the other side of the balance sheet when the contra account is purely a fiction. A sinking fund installment of this kind due within one year is perhaps best shown as a memorandum directly under the current liabilities. This constitutes a sufficient disclosure of facts and is not liable to be misinterpreted.

Banker Interested in Association Work

In any negotiations for financing, a corporation should, if it is able, try to convince its banker that the management is thinking of its business affairs, not only in the present but in the future. The banker is interested in much of the work which this association is doing. He is interested in your cost accounting system. He does not want to investigate it in detail but he does want to know that the corporation has a real cost system which operates satisfactorily. He wants to know that it has adequate material control. He wants to know that it can produce an accurate profit and loss statement promptly at the close of each month. In other words, he wants to know that the management has the proper tools for the efficient administration of the business, and particularly he wants to know that the management is thinking not only about today but about tomorrow. He wants to know about the budget, not necessarily to analyze what it shows, but to assure himself that the management is making full use of it. The corporation cannot prepare a usable budget unless it is thinking ahead, because a budget states operations in terms of the future.

There is a great deal of information outside of balance sheets and profit and loss statements that you can prepare that will aid in financing negotiations. I believe that a corporation if it properly plans its negotiations for long term financing will go the full length of not only planning the form of security and estimating the selling price, but will even draw up a preliminary circular just in order to determine how convincing an argument can be presented to the public.

There are many other important statements which you can prepare that may be of material value if your corporation is about to undertake financing. Many banking houses are going more deeply into the investigation of industrial enterprises today than ever before. Business is becoming more highly competitive and changes in conditions are following one after the other in great rapidity so that great care must be used in the selection of investments. It is also natural that with the present trend towards equity financing that banking houses will be much more careful in the investigation of corporations than they were during the period in which bonds were the predominant medium of financing. A bond issue may be retired in the course of a few years, while the stock issue may be out-standing forever.

Summary of Pulpwood Situation

One of the things which relates to paper mill operations, which will be of great interest to your banker, will be a summary of the pulpwood situation as it affects your company. This is particularly true with regard to those mills which are becoming more widely separated from their source of wood supply. The investment banker will want to know the annual requirements of the corporation in terms of cords or thousand feet of pulpwood. He will want to know the different kinds of wood which are used, and the sources from which they are obtained. He will be interested in knowing the yield per cord or per thousand feet for various kinds of pulp.

There is a great deal of information along these lines which may be readily prepared in summary form. It is useless to attempt to go into too much detail because you may kill the other man's interest. He may look at a detailed analysis and say, "That is too much for me; some one else will have to study this and tell me the story." This principle also applies to any operating statement. Do not submit your profit and loss accounts to too much detail. I know of one paper converting company, which does quite a volume of printing work. This company had a departmental cost system which provided for transfers between departments at arbitrary values, so that each department showed a profit or a loss, and the company furnished its bankers with complete detailed statements showing these departmental operations. This nearly ruined the business in the mind of the bankers because according to the cost statement, the only department that made a profit was the ink department.

The Matter of Power

Another important factor in the paper business which the investment banker will wish to investigate is power. Power is a tremendously large factor in your production costs and accordingly is very interesting to any one studying your business. It is particularly interesting today because a great many paper mill securities are being sold to the public with very broad representations as to the value of water power properties, and the ability of the paper company to convert itself into a public utility company at some future date.

In these days of intense competition, your banker will be deeply interested in the problem of distribution. If your company has adequate statistical data you would do well to prepare a summary covering a period of years showing the geographical distribution of sales and the distribution among industries together with a list of your principal customers showing the amount of sales to each one in each year.

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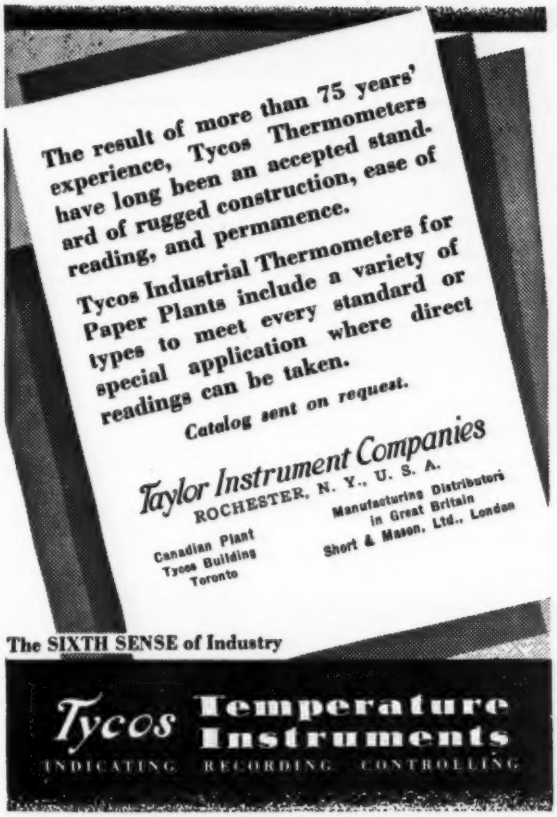
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SUMMARY

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Wall paper .....288 bls., 58 cs.
Paper hangings .....21 bls., 2 cs.
News print .....34 bls., 1,430 rolls
Printing paper .....37 rolls, 72 bls., 247 cs.
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Kensington Wallpaper Co., Milwaukee, Hamburg 19 bls., 4 cs.
Crepe Kraft Co., Sagoporack Gothenburg, 199 rolls.
Gilbert Paper Co., Sagoporack, Gothenburg, 69 bls., 48 rolls.
Blauvelt Wiley Paper Manfg. Co., Sagoporack, Gothenburg, 292 rolls.
Arkell Safety Bag Co., Sagoporack, Gothenburg, 442 rolls.
The Borregaard Co., Inc., Sagoporack, Gothenburg, 83 bls., 7 rolls.
Union Paper & Twine Co., Sagoporack, Gothenburg, 47 rolls.
Manhattan Paper Co., Sagoporack, Gothenburg, 23 bls.
M. M. Cohen, Sagoporack Gothenburg, 12 rolls.
Walker Goulard Plehn Co., N. Amsterdam, Rotterdam, 10 bls.

RAGS, BAGGINGS, ETC.

Lehr Manfg. Co., Liverpool, Maru Oran, 286 bls. rags, 243 bls. bagging.
Guaranty Trust Co., H. Jasper, Antwerp, 51 bls. rags.
Anglo South American Trust Co., H. Jasper, Antwerp, 51 bls. rags.
American Express Co., Cameronia, Glasgow, 11 bls. paper stock.
C. R. Spence & Co., Cameronia, Glasgow, 28 bls. paper stock.
A. H. Searle, Cameronia, Glasgow, 57 bls. paper stock.
Chemical Bank & Trust Co., Pr. Harding, Bremen, 42 bls. rags.
Banco Com'l Italiane Trust Co., Exchange Constantinople, 324 bls. rags.
Manufacturers Trust Co., Samland, Antwerp, 61 bls. flax canvas.
E. Mayer, Muenchen, Bremen, 8 bls. rags.
International Germanic Trust Co., Westphalia, Hamburg, 7 bls. rags.
Equitable Trust Co., Westphalia, Hamburg, 154 bls. rags.
N. Y. Trust Co., Westphalia, Hamburg, 33 bls. jute waste.
Cohen & Sons Co., Inc., Indep Hall, Bordeaux, 22 bls. rags.
Katzenstein & Keene, Inc., Indep Hall, Bordeaux, 63 bls. rags.
N. E. Berzen, Indep Hall, Bordeaux, 89 bls. rags.
Katzenstein & Keene, Inc., Indep Hall, St Nazaire, 138 bls. bagging.
E. J. Keller Co., Inc., Indep. Hall, ——, 184 bls. rags.
Royal Manfg. Co., Sarcoxie, Havre, 11 bls. cotton waste.
J. Cohen & Son, Sarcoxie, Havre, 54 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Havre, 72 bls. rags.
B. D. Kaplan, Sarcoxie, Havre, 6 bls. rags.
V. Galaup, Sarcoxie, Havre, 157 bls. rags.
Van Oppen & Co., Sarcoxie, Havre, 181 bls. bagging.
A. W. Fenton, Inc., Sarcoxie, Dunkirk, 4 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Dunkirk, 73 bls. rags.

(Continued on page 78)

Pulp Mill Knives for
Chippers
Barkers
Hogs
Shredders

Paper Mill Knives for
Washers
Beaters
Refiners
Jordans
Rotary Sheet Cutters
Trimmers
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Bolton Quality
BRONZE JORDAN KNIVES
Cut replacements—no erosion or sluffing—no discolorization

$1500 a year saved by one mill using them. Knives of Bolton Bronze are tough, hard, stiff, maintain clean, sharp, square edges over their entire length. Wear longer, reduces replacements. Write for information.

"It's the KNIVES that do the work"

John W. Bolton and Sons, Inc.
Lawrence, Massachusetts
BOLTON QUALITY
Specialists in pulp and Paper Mill Knives For Twenty-Five Years

2865

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Buyers liked the idea of Paris Black in Fibre Containers right from the start. There has been no let down in the demand—in fact, it is increasing.

So this is a reminder to try it, in case you aren't already a satisfied user. By packing in fibre containers, the full strength and fine quality of Heller & Merz Paris Black reaches your plant unimpaired.

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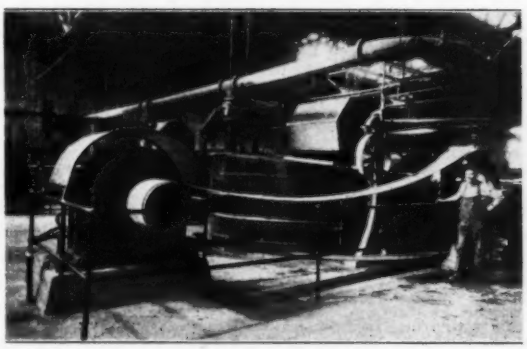
"YOUR PAPER IS MADE IN YOUR BEATERS"

RHOADS TANNATE WATERSHED LEATHER BELTING



BETTER GRIP AND EXTRA STRENGTH THAT'S WHAT DOES IT.

THERE are ten beaters in this room, equipped with 16- and 18-inch Tannate Watershed Leather Belts. Before trying Tannate, idlers were used on these beaters. Now all are open Tannate drives and giving splendid service.

This company has a number of Tannate Watershed Belts in its different mills. And recently, in one, both buyer and power engineer expressed positively their satisfaction with the Tannate installations.

Waterproof, stronger grip, longer life on hard drives are reasons why Rhoads Tannate Watershed Belting wins in paper mills.

If you are interested in cutting costs and increasing output, let us furnish under the Rhoads Service Guarantee the belts which you will need next time. This Guarantee leaves you to be the judge of whether your purchase has been profitable.

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CHICAGO .....24 N. Clinton St.
ATLANTA .....70 Forsyth St., S. W.
CLEVELAND .....1224 W. Ninth St.
Factory and Tannery, Wilmington, Del.

Imports of Paper and Paper Stock

(*Continued from page 76*)

E. Mayer, Sarcoxie, Dunkirk, 47 bls. rags.
Van Oppen & Co., N. Amsterdam, Rotterdam, 15 bls. paper stock; 702 bls. bagging.
W. Steck & Co., N. Amsterdam, Rotterdam, 11 bls. rags.
E. J. Keller Co., Inc., N. Amsterdam, ——, 86 bls. rags.
Banco Com'l Italiane Trust Co., Serenitas, Savona, 82 bls. rags.
Brown Bros. & Co., Kearny, Dublin, 65 bls. waste paper.
Darmstadt Scott & Courtney, Austvard, Genoa, 84 bls. bagging.
Banco Com'l Italiane Trust Co., Austvard, Leghorn, 369 bls. rags.
S. Birkenstein & Sons, Austvard, Barcelona, 107 bls. rags; 80 bls. rags.
Liberty National Bank & Trust Co., Austvard, Malaga, 58 bls. rags.
Equitable Trust Co., Pr. Roosevelt, Bremen, 961 bls. rags.
Irving Trust Co., Pr. Roosevelt, Bremen, 159 bls. rags.
Bankers Trust Co., Pr. Roosevelt, Bremen, 10 bls. rags.

OLD ROPE

S. Birkenstein & Son, Liverpool Maru, Oran, 32 coils.
International Purchasing Co., Udondo, Cadiz, 175 bls., 395 coils.
Brown Bros. & Co., Udondo, Pasajes, 578 coils.
Brown Bros. & Co., Cameronia, Glasgow, 53 coils.
Brown Bros. & Co., Samland, Antwerp, 50 coils.
Brown Bros. & Co., Austvard, Huelva, 170 coils.

CASEIN

Tradesmans National Bank, Eastern Prince, B. Ayres, 500 bags.

WOOD PULP

Johanson Wales & Sparre, Inc., Fernland, Sundsvall, 3,075 bls. sulphite.
Scandinavian Pulp Agency, Inc., Fernland, Sundsvall, 250 bls. sulphite; 1,600 bls. sulphate.
Perkins Goodwin & Co., Fernland, Sundsvall, 1,025 bls. sulphite.
Fagel Horton & Co., Inc., Fernland, Gefle, 3,000 bls. sulphite.
Bulkley Dunton & Co., Fernland, ——, 1,500 bls. wood pulp.
——, Sagoporack, Kotka, 458 bls. sulphite, 77 tons.
Lagerloef Trading Co., Sagoporack, Kotka, 338 bls. sulphite, 50 tons.
Castle & Overton, Inc., Westphalia, Hamburg, 1,028 bls. wood pulp, 154 tons.
Irving Trust Co., Pr. Roosevelt, Bremen, 175 bls. wood pulp, 29 tons.

WOOD FLOUR

State Chemical Co., N. Amsterdam, Rotterdam, 740 bags.
——, N. Amsterdam, Rotterdam, 250 bags.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 30, 1929

E. Butterworth & Co., Inc., Liverpool Maru, Genoa, 34 bls. rags.
J. Andersen & Co., Sagoporack, Gothenburg, 2,040 bls. sulphite, 414 tons.
Lagerloef Trading Co., Sagoporack, Kotka, 254 bls. wood pulp, 50 tons.
——, Sagoporack, Kotka, 4,059 bls. sulphite, 677 tons.
——, Sagoporack, Kotka, 2,032 bls. sulphate, 406 tons.
Oxford University Press, Scythia, Liverpool, 5 cs. printing paper.
Bulkley Dunton & Co., Bockenheim, ——, 3,925 bls. wood pulp.
Bulkley Dunton & Co., Skagern, ——, 1,750 bls. wood pulp.
Bulkley Dunton & Co., Fernland, ——, 12,100 bls. wood pulp.
Bulkley Dunton & Co., Sachsen, ——, 170 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 30, 1929

Waterfalls Papermills, Sagoporack, Gothenburg, 7,500 bls. wood pulp, 1,522 tons; 250 bls. sulphite, 52 tons; 89 rolls paper.
The Borregaard Co., Inc., Sagoporack, Gothenburg, 1,250 bls. wood pulp, 253 tons.
M. Gottesman & Co., Inc., Sagoporack, Gothenburg, 1,000 bls. sulphite, 203 tons.
——, Sagoporack, Kotka, 1,070 bls. sulphate, 182 tons.
——, Sagoporack, Kotka, 1,783 bls. sulphite, 297 tons.
Lagerloef Trading Co., Sagoporack, Helsingfors, 677 bls. sulphite, 101 tons.
M. Gottesman & Co., Inc., Sagoporack, Stockholm, 600 bls. sulphite, 101 tons.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 30, 1929

J. Andersen & Co., Fernland, Hernosand, 1,500 bls. sulphate.
Fagel Horton & Co., Inc., Fernland, Munksund, 4,200 bls. sulphate.
Price & Pierce, Ltd., Fernland, Ohrviken, 4,800 bls. wood pulp.
Bulkley Dunton & Co., Fernland, ——, 1,550 bls. wood pulp.
National Bank & Trust Co., Isarco, Messina, 274 bls. rags.
J. A. Steer & Co., Indep. Hall, Bordeaux, 221 bls. rags.
A. W. Fenton, Inc., Indep. Hall, Bordeaux, 858 bls. rags.
Castle & Overton, Inc., Indep. Hall, Bordeaux, 54 bls. rags.
National Vulcanized Fibre Co., Indep. Hall, Bordeaux, 141 bls. rags.
G. Mathes & Co., Indep. Hall, Bordeaux, 93 bls. rags.
Latzenstein & Keene, Inc., Indep. Hall, Bordeaux, 85 bls. rags.
S. E. Ingber, Indep. Hall, Bordeaux, 328 bls. rags.
D. I. Murphy, Indep. Hall, Bordeaux. 40 bls. rags.
D. I. Murphy, Indep. Hall, St. Nazaire, 9 bls. bagging, 361 bls. rags.
National Vulvanized Fibre Co., Indep. Hall, St. Nazaire, 176 bls. rags.
Castle & Overton, Inc., Indep. Hall, St. Nazaire, 128 bls. rags.
H. G. Lichtenstein, Indep. Hall, St. Nazaire, 241 bls. rags.
Katzenstein & Keene, Inc., Indep. Hall, St. Nazaire, 163 bls. rags.
Phila. National Bank, Indep. Hall, St. Nazaire, 115 bls. rags.
A. Hurst & Co., Indep. Hall, St. Nazaire, 47 bls. rags.
Castle & Overton, Inc., Sarcoxie, Havre, 61 bls. rags.
V. Galaup, Sarcoxie, Havre, 804 bls. rags.
Chase National Bank, Sarcoxie, Havre, 248 bls. rags.
National Vulcanized Fibre Co., Sarcoxie, Havre, 80 bls. rags.
J. A. Steer & Co., Sarcoxie, Havre, 178 bls. rags.
A. Hurst & Co., Sarcoxie, Havre, 58 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Havre, 71 bls. rags.
G. Mathes & Co., Sarcoxie, Havre, 62 bls. rags.
Union Waste Co., Sarcoxie, Havre, 12 bls. rags.
D. I. Murphy, Sarcoxie, Havre, 353 bls. rags, 79 bls. bagging.
Chase National Bank, Sarcoxie, Dunkirk, 44 bls. rags.
American Sanitary Rag Co., Sarcoxie, Dunkirk, 41 bls. rags.
Belgian Corp., Sarcoxie, Dunkirk, 43 bls. rags.
J. A. Steer & Co., Sarcoxie, Dunkirk, 247 bls. rags.
S. Birkenstein & Son, Sarcoxie, Dunkirk, 60 bls. rags.
V. Galaup, Sarcoxie, Dunkirk, 143 bls .rags.
D. I. Murphy, Sarcoxie, Dunkirk, 193 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Dunkirk, 664 bls. rags; 95 bls. bagging.
Brown Bros. & Co., Sarcoxie, Dunkirk, 36 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, ——, 142 bls. rags.
W. Schall & Co., Serenitas, Savona, 35 bls. rags.
J. H. Weil, London Corp., London, 3 cs. drawing paper.
Castle & Overton, Inc., Udondo, Bilbao, 46 bls. rags.
Castle & Overton, Inc., Udondo, Pasajes, 116 bls. rags.
Fidelity Trust Co., Ida, Bari, 361 bls. rags.
E. J. Keller Co., Inc., Leverkusen, ——, 117 bls. rags.
Bulkley Duton & Co., Skagern, ——, 250 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 30, 1929

Baltimore Trust Co., Indep. Hall, Bordeaux, 42 bls. rags.
Castle & Overton, Inc., Indep. Hall, Bordeaux, 220 bls. rags.
Congoleum Nairn Co., Indep. Hall, Bordeaux, 967 bls. rags.
Katzenstein & Keene, Inc., Indep. Hall, Bordeaux, 95 bls. rags.
Katzenstein & Keene, Inc., Indep. Hall, St. Nazaire, 533 bls. rags.
Bulkley Dunton & Co., Kelkheim, ——, 4125 bls. wood pulp.
Bulkley Dunton & Co., Tugela, ——, 3375 bls. wood pulp.
Bulkley Dunton & Co., Bilderdyk, ——, 300 bls. wood pulp.
Bulkley Dunton & Co., Hannover, ——, 3000 bls. wood pulp.

Paper Mill Worker Killed at Kaukauna

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—A fatal accident occurred last week at the Thilmany Pulp and Paper Company, Kaukauna, Wis. Elmer Senso, a 19-year-old employee, was instantly killed when he became caught between two cooling rolls on a waxing machine. It is believed that his body passed entirely through the rolls. Two men working on the same machine had gone elsewhere for a roll of paper when the accident happened.

Paper Mill Device Patented

[FROM OUR REGULAR CORRESPONDENT]

TROY, N. Y., November 30, 1929.—Elmer C. Schacht, of this city, has been awarded a patent on a paper mill device after a wait of more than two years. He was allowed a number of claims for new ideas in connection with his invention and the patent rights have been assigned to the Behr-Manning Corporation. He filed his application June 25, 1927, and the abrasing device is described as "a substantially flexible abrasive element having a central opening and openings disposed outwardly of the central opening, one edge of each of the outwardly disposed openings being depressed and the abrasive surface adjacent the same being relatively smooth." The delay in granting of patent application was due to lack of sufficient personnel.

Severe Weather Retards Marathon Addition

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—Progress on the large addition to the plant of the Marathon Paper Mills Company at Menasha, Wis., was interrupted during the last ten days by a sudden spell of zero weather. Crews are still pouring concrete for the walls and are waiting for milder weather. The walls of the first story are done, and about half of the second story is up. The building will house the carton department.

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 4, 1929.

The local paper market has exhibited continued activity during the past week, with a prevailing steadiness of tone in all grades. Demand remains fair, and shipments go forward at reasonable rates.

Conditions in the news print market are particularly satisfactory, with production averaging about 85 per cent of capacity. The recent reports show that consumption of news print has been about 8 per cent higher than corresponding periods last year.

The price level on paper boards remains unsatisfactory, although a strong undertone is noticed, and boards are in good demand. The fine paper market holds firm, and shipments are being made steadily. Coarse grades are quoted at approximately the previous prices. Wrapping paper moves into consumption at a good rate.

Mechanical Pulp

There was continued fair activity in the market for mechanical pulp this week. Infrequent offerings are made, and the price remains unchanged.

Chemical Pulp

Business in the chemical pulp market was carried on in routine manner during the past week. Imported No. 1 kraft sulphite is now quoted at from $2.35 to $2.50; No. 2 kraft at from $2.30 to $2.40; Bleached sulphite at from $3.40 to $3.85; and domestic bleached sulphite at from $3.20 to $4.75 This slight downward tendency creates increased demand on these grades, with the others in fair request.

Old Rope and Bagging

The market for old rope and bagging shows good demand for both imported and domestic old manila, and for mixed rope. Prices are as previously quoted.

Rags

Trading in the rag market was not unusually active during the past week. Routine conditions prevailed, with mixed rags and roofing grades in good demand. Quotations remain unchanged.

Waste Paper

The general weakness of tone in the lower grades of waste paper continues this week. No. 1 mixed is now quoted at from .25 to .30, with common paper at from 15 to .20. The better grades hold firm at last week's prices.

Twine

Satisfactory demand for twine is noted. The twine market has shown steady activity, and shipments are made at seasonal pace. Quotations are as of last week.

S. L. Willson to Confer With President

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 3, 1929.—President Sidney L. Willson, of the American Writing Paper Company, has accepted an invitation from President Herbert Hoover to attend a meeting to be held in the United States Chamber of Commerce Thursdays of this week for the purpose of discussing voluntary and cooperative moves to further business progress and prosperity.

Northern New York Power Discussed

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., November 30, 1929.—In an address before the Black River Valley Chamber of Commerce, John N. Carlisle, vice president of the St. Regis Paper Company, declared that the ability to sell power cheaper than any other section in the country and the launching of two state-wide industrial surveys to follow up a national advertising campaign will ultimately bring about the development of resources in Northern New York and the utilization of products produced in that section. Speaking before several hundred business men and manufacturers Mr. Carlisle outlined the plans of the Carlisle organization for the development of Northern New York and the entire state. Characterizing the industrial survey about to be started through the organization of an Industrial Survey Bureau as one that would bring results he predicted an expansion which will benefit the entire North Country even though new industries are not obtained for this city.

British News Print Imports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 4, 1929.—Imports of news print paper into Great Britain during the first half of this year reached a total of 162,164 tons, an increase of 25,000 tons compared with the corresponding period of last year. Imports from Canada show an increase from 38,661 tons to 64,792 tons, and in addition 30,300 tons came from Newfoundland, making a total of 95,092 tons for the two dominions. Much of this increase was at the expense of the Scandinavian countries which suffered a decrease of almost 10,000 tons in their shipments of this class of paper to the British market. This year's shipments of 54,591 tons from those countries to Great Britain, were under those from the overseas Dominions, the first time such a situation has arisen, according to reports to the Department of Commerce.

James Logan Dead

SPRINGFIELD, Mass., December 2, 1929.—James Logan, 77, president since 1922 of the United States Envelope Company and for 25 years before that its vice-president and general manager, and a former mayor of Worcester, died at his home in Worcester soon after midnight Saturday following a long illness. A prominent resident of Worcester and well known in this city and in business and political circles of the state and section. Mr. Logan had been in failing health for some time particularly since sustaining an arm injury in a fall three years ago. His death follows by two months that of his wife, Mrs. Annie (Devereaux) Logan.

Fellowships Authorized at Lawrence College

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 2, 1929.—Two fellowships carrying appropriations of $500 a year have been authorized at Lawrence College, Appleton, Wis., by the Paper Makers' Chemical Corporation. They are to be used in connection with the newly created institute of paper chemistry, and will be given to students of the institute who show suitable qualifications for the advanced work of the graduate school.

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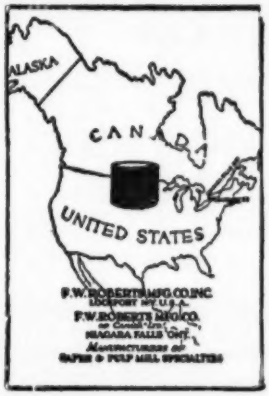
BURRS



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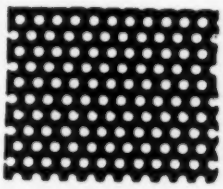

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 4, 1929.

BLANC FIXE.—The blanc fixe market remains unchanged in price and demand. Both powder and pulp are moving at a fair rate. Quotations on the powder are from 3¼ to 4½ cents per pound, in barrels, with the pulp selling at from $42.50 to $45.00 per ton.

BLEACHING POWDER.—Conditions in the bleaching powder market continue fairly steady, with shipments being made in routine quantities. The prices on bleaching powder are from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—There is a slight downward tendency in the casein market for both domestic and Argentine brands. The temporary cessation of tariff activities, together with the flush season in the Argentine combine to make a slightly lower price. All grades are off about a quarter cent per pound. Quotations are now 15¾ to 16 cents for Argentine standard ground; with finely ground at from 16¼ to 16¾ cents per pound, and domestic casein at 15¼ to 16½ cents per pound, all in bags, car lot quantities .

CAUSTIC SODA.—The caustic soda market has shown no radical changes during the past week. Prices remain at approximately the same level, with shipments progressing in seasonal volume. Solid caustic soda is quoted at from $2.90 to $2.95, with the ground and flake at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market continues fairly active with contract shipments progressing at a fair rate. The quotations are from $8 to $13 per ton on domestic paper making clay, at mine, with imported grades selling at from $15 to $25 per ton, ship side.

CHLORINE.—The prices recently announced for chlorine continue in force. Standard contracts are $2.85 per 100 pounds, in tanks, or multi-unit cars, at works, with spot quotations at from 3¼ to 3½ cents per pound.

ROSIN.—Moderate quantities of rosin were moving into consumption during the past week, with prices holding firm at $8.55 per 280 pounds for gum rosin, in barrels, on dock. Wood rosin is now selling at from $7.00 to $8.05 per 280 pounds, in barrels at southern shipping points.

SALT CAKE.—Offerings of salt cake remain somewhat scarce with prices holding to former levels of from $18 to $21 per ton. Chrome salt cake is being quoted at from $15 to $16 per ton, in bulk, at works.

SODA ASH.—Contracts for soda ash are renewed at this year's prices, and shipments are going forward in good quantities. Soda ash in car lots, at works, is quoted on contract at $1.32½ in bags, $1.55 in barrels.

SULPHATE OF ALUMINA.—A consistently firm market for sulphate of alumina characterized the past week's trading, with normal shipments continuing. Iron free sulphate is quoted at $1.90 to $2.05 per 100 pounds. Commercial sulphate prices are from $1.40 to $1.55, in bags, at works.

SULPHUR.—Conditions in the sulphur market are satisfactory, with prices holding to schedule. Contract quotations are $18 per ton, at mine, in lots of 1,000 tons or over. Smaller quantities go for $20 per ton. Spot and near by car loads remain at $21 per ton.

TALC.—A good volume of shipments are going forward, and prices on domestic talc range from $16 to $18 per ton, in bulk, at Eastern mines. Imported talc is from $18 to $20 per ton, in bags, ship side.

Oscar Simpson Joins Flint Paper Co.

APPLETON, Wis., December 2, 1929.—Oscar Simpson, who has been connected with the Graham Paper Company, St. Louis, Mo., for a number of years has joined the Flint Paper Company, of Milwaukee, Wis. He has been elected secretary of the latter company.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.00	@ 5.50
Southern	4.45	@ 4.70
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	37.50	@40.00
Straw	52.50	@55.00
Chip	35.00	@37.50
Binders' Boards	65.00	@70.00
Wood Pulp	80.00	@85.00
65 Test Jute Liner	45.00	@47.50
85 Test Jute Liner	50.00	@55.00
Sgl. Mla. Ll. Chip	47.50	@50.00

Mechanical Pulp
(On Dock)

No. 1 Imported—		
Moist	30.00	@32.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.25
Easy Bleaching	3.00	@ 3.15
No. 1 strong unbleached	2.75	@ 3.00
Mitscherlich unbleached	2.80	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.35	@ 2.50
No. 2 Kraft	2.30	@ 2.40
Sulphate—		
Bleached	3.40	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.20	@ 4.75
Easy Bleaching Sulphite	2.65	@ 3.00
News Sulphite	2.50	@ 2.70
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.10	@ 3.30
Soda Bleached	3.10	@ 3.25
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags
New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New Whiite, No. 2	8.00	@ 8.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	11.00	@11.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Blue Overall	7.50	@ 8.00
Washables	4.75	@ 5.25
Fancy	5.75	@ 6.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.00

Foreign Rags
New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.00	@10.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

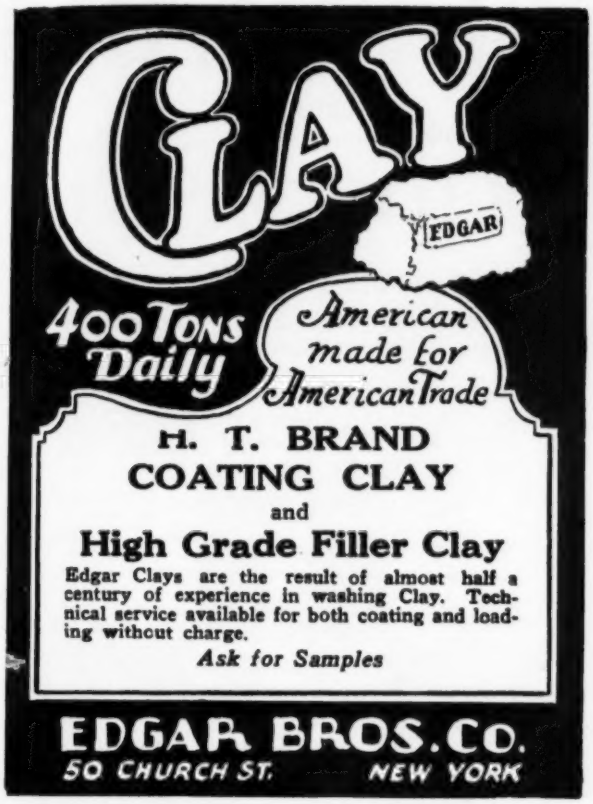
No. 1 White Linens	7.50	@ 8.25
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	2.00	@ 2.10
Dutch Blue Cottons	2.25	@ 2.40
French Blue Linens	2.75	@ 2.85
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.15	@ 2.25
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.55	@ 1.60
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.55
French Blues	2.10	@ 2.25

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.50	@ 1.60
Domestic	1.60	@ 1.70
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.40	@ 4.60
Domestic	4.75	@ 5.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers
(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.00	@ 3.25
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.30	@ 2.45
White envelope cuttings	2.90	@ 3.10
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag.	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.00	@ 1.10
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.45	@ .55
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.50	@ 1.75
Extra No. 1 old	1.25	@ 1.35
Print	.60	@ .65
Container	.40	@ .50
Bogus Wrapper	.60	@ .65
Old Kraft Machine Compressed bales	1.65	@ 1.75
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.65	@ .70
Strictly Folded	.55	@ .60
No. 1 Mixed Paper	.25	@ .30
Common Paper	.15	@ .20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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.50	@	.60
Ledger & Writings	1.25	@	1.45
Solid Books	1.05	@	1.10
Blanks	1.40	@	1.50
Kraffts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.75	@	1.80
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.70	@	.75
Folded News (overissue)	.65	@	.70
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.55	@	.65
Mixed Papers—			
No. 1	.50	@	.60
Rooning Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	40.00	@	40.00
Chip Board	38.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.60	@	.65
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.85
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Rooning Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.01¾	@	.02
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11¾
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	50.00	@	—
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	.165	@	1.85
Print Manila	.80	@	.90
No. 1 Mixed Paper	—	@	.40
Overissue News	.60	@	.70
Old Newspapers	.45	@	.50
Box Board, Chip	.45	@	.50

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.40	@	1.50
Manila Rope—			
Foreign	4.37½	@	4.50
Domestic	4.50	@	4.75
Transmission Rope	—	@	3.00
Mixed Strings	1.00	@	—
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.05	@	1.15
Scrap Burlaps	1.37½	@	1.50
Scrap Sisal	1.80	@	2.00
Scrap Sisal for shredding	1.85	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	3.00	@	3.12½

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03¼
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Rooning Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	1.55
New No. 1 Shirt Cuttings	9.00	@	9.50
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.75	@	5.00
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	2.00
Old Linsey Garments	1.80	@	1.85

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	78.00
Sulphate	60.00	@	—

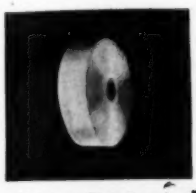
Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¾	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

BIG MONEY IN LITTLE ROLLS

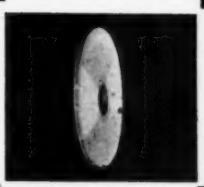


Glassine, Waxed and Tissue Rolls

Increasing demand for adding machine rolls gummed tape—

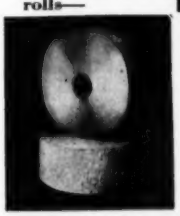
Adding Machine and Cash Register Rolls

tire wrap barber head-rest rolls shelf paper rolls—



Narrow Printed Rolls

register rolls counter rolls candy wrap rolls, box stay rolls and—



Tire and Wire Wrap Rolls

dozens of other small roll products is opening up a new field

Box Stay Rolls

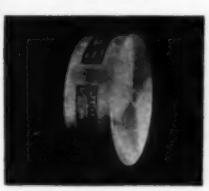
for profit to Camachine owners.

Barber Head-Rest Rolls

Install a Camachine and get your share

Carbon Paper Rolls

of the profits to be made in the roll paper business.



Gummed Tape Rolls

CAMERON MACHINE COMPANY

61 Poplar Street

Brooklyn, New York

PAPER TRADE JOURNAL

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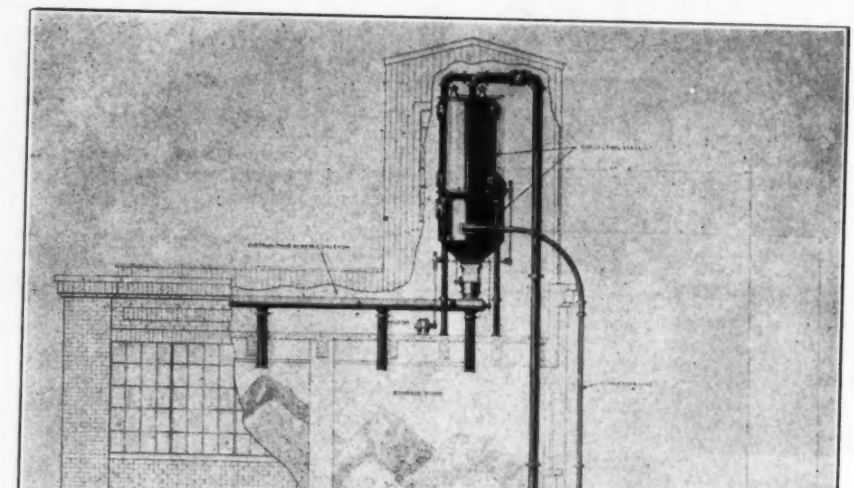
CLAY
PULVERIZED AND AIR WASHED



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